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# Overview of progress towards sustainable development: a review of the implementation of Agenda 21, the Programme for the Further Implementation of Agenda 21 and the Johannesburg Plan of Implementation

## Report of the Secretary-General**

*Summary*

The present report contains a review of progress towards realizing the commitments and meeting the targets agreed to in Agenda 21 and subsequent intergovernmental meetings related to sustainable development, notably those contained in the Johannesburg Plan of Implementation. In the short time since the World Summit on Sustainable Development met, progress has been made mostly in terms of process, including capacity-building in developing countries (e.g., with respect to the Clean Development Mechanism of the Kyoto Protocol to the United Nations Framework Convention on Climate Change, sustainable forest management, chemicals classification and labelling, the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, and trade promotion), development of action plans (e.g., for protecting the marine environment from land-based activities, adaptation to climate change, combating desertification), and refinement of the framework for global environmental governance. Key conventions like those on prior informed consent for trade in certain hazardous chemicals and pesticides and on persistent organic pollutants are close to entry into force. On the other hand, only halting progress has been made at the international level towards addressing challenges such as that of climate change, though regional, national and local initiatives are numerous.

* E/CN.17/2004/1.

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In terms of social and economic progress, the 1990s and the early part of the current decade have yielded very mixed outcomes. On the one hand, the world's two largest countries by population have made significant strides in poverty reduction and in improving various social indicators. On the other, many other developing countries have stagnated or even experienced periods of economic crisis. Outside Asia, few are on track to meet the Millennium Development Goals concerning poverty reduction and, in parts of sub-Saharan Africa, hunger remains a very serious problem. That region is also heavily burdened by the HIV/AIDS epidemic, which has multiple, profound implications for its socio-economic development prospects. While certain countries in other regions are on the cusp of an HIV/AIDS epidemic, decisive measures could still avert a full-blown crisis. Child mortality has been reduced in the 1990s, but only accelerated progress will achieve the relevant Millennium Development Goals, and maternal mortality has seen little improvement. In the area of education, some regions have made significant progress in expanding enrolments, particularly at secondary level, and in moving towards gender parity.

Progress has been especially slow in the international economic arena, as evidenced by the stalling of the Doha Round of trade negotiations. Also, whereas foreign direct investment had been considered a relatively stable source of financing to developing countries at the height of the financial crises of the late 1990s, more recently some regions have experienced sharp declines in inflows, while overseas remittances have proven more stable — at least for those countries with large populations resident abroad. Two relatively bright spots have been recent increases in real official development assistance flows from member countries of the Development Assistance Committee of the Organisation for Economic Cooperation and Development, and substantially increased funding for the fight against HIV/AIDS.

# Contents


| | | *Paragraphs* | *Page* |
|---|---|---|---|
| I. | Introduction | 1–3 | 4 |
| II. | Poverty eradication and socially inclusive development | 4–22 | 4 |
| | A. Reductions in poverty and hunger | 5–10 | 5 |
| | B. Health and sustainable development | 11–18 | 6 |
| | C. Education for sustainable development | 19–22 | 10 |
| III. | Protecting and managing the natural resource base | 23–52 | 10 |
| | A. Oceans | 24–27 | 11 |
| | B. Fisheries | 28–31 | 12 |
| | C. Atmosphere and climate | 32–37 | 13 |
| | D. Biodiversity | 38–42 | 14 |
| | E. Forests | 43–48 | 15 |
| | F. Mountain areas | 49–50 | 17 |
| | G. Desertification | 51–52 | 17 |
| IV. | Changing unsustainable patterns of consumption and production | 53–67 | 18 |
| | A. Ten-Year Framework of Programmes for Sustainable Consumption and Production: the Marrakesh Process | 54–55 | 18 |
| | B. Chemicals and hazardous waste | 56–60 | 19 |
| | C. Energy | 61–64 | 20 |
| | D. Sustainable tourism development | 65–67 | 21 |
| V. | Means of implementation | 68–94 | 22 |
| | A. Finance | 69–80 | 22 |
| | B. Trade | 81–89 | 26 |
| | C. Technology | 90–93 | 28 |
| | D. Corporate social responsibility | 94 | 29 |
| VI. | Institutional and strategic framework for sustainable development | 95–99 | 30 |
| | A. International and regional initiatives for capacity-building and partnerships | 95–96 | 30 |
| | B. National strategies for sustainable development | 97–99 | 30 |
| VII. | Current status and future challenges | 100–109 | 31 |

# I. Introduction

1. At its eleventh session, the Commission on Sustainable Development requested the Secretary-General to prepare, for the 2004 review session, state-of-implementation reports reflecting overall progress in the implementation of Agenda 21,[1] the Programme for Further Implementation of Agenda 21[2] and the Johannesburg Plan of Implementation,[3] also identifying new challenges and opportunities related to implementation.[4] Detailed reviews of progress in implementation in the selected thematic clusters for the 2004-2005 cycle — water, sanitation and human settlements — are provided in other reports of the Secretary-General (see E/CN.17/2004/4-6).

2. The present report covers other issues addressed in the Johannesburg Plan of Implementation, Agenda 21 and the Programme for the Further Implementation of Agenda 21, with a particular focus on time-bound targets and issues on which there have been important recent developments relating to implementation. As implementation of Agenda 21 and the Programme for the Further Implementation of Agenda 21 was extensively reviewed as part of the preparations for the World Summit on Sustainable Development, primary reference here is to the Johannesburg Plan of Implementation, although the other two are also mentioned as appropriate.

3. Particular attention is given here to the integration of the social, economic and environmental dimensions of sustainable development and to the cross-cutting issues, noting that the various targets are interdependent. For instance, achieving universal primary school enrolment may depend on improvements to rural roads and increases in family incomes as well as on expansion of schools; gender parity in education may depend on convenient access to safe water, freeing girl children's time to attend school. Improved sanitation is a major factor in reducing infant and child mortality. In a longer-term perspective, biodiversity conservation may be crucial to finding new treatments for diseases like malaria and HIV/AIDS. In some circumstances, there may also be conflicts among different targets and objectives, for example, when investments in road networks to increase income-generating opportunities also intensify deforestation pressures.

# II. Poverty eradication and socially inclusive development

4. The eradication of poverty and hunger and universal access to basic health care and education are at the core of sustainable development, as indicated in Agenda 21, the Programme for the Further Development of Agenda 21 and the Johannesburg Plan of Implementation. The Johannesburg Plan of Implementation reaffirmed a number of poverty-related commitments and targets from the United Nations Millennium Declaration,[5] including the following: to halve, by 2015, the proportion of the world's people whose income is less than one dollar a day, the proportion of people who suffer from hunger, and the proportion of people without access to safe drinking water (Johannesburg Plan of Implementation, para. 7 (a)); to ensure that children everywhere, boys and girls alike, will be able to complete a full course of primary schooling and have equal access to all levels of education (para. 7 (g)); to achieve, by 2020, a significant improvement in the lives of at least 100 million slum-dwellers (para. 11); and to reduce, by 2015, mortality rates for infants and children under five years by two thirds, and maternal mortality rates by three

quarters (para. 54 (f)). In addition, the Summit adopted a new goal: to halve, by 2015, the proportion of people without access to basic sanitation (para. 25). The goals relating to safe drinking water, basic sanitation and slum-dwellers are addressed in the reports on water, sanitation and human settlements, respectively.

## A. Reductions in poverty and hunger

5. Good progress towards the poverty-related Millennium Development Goals in some regions indicates that they could be reached at the global level. At current rates, however, other regions are likely to fall well short. The Secretary-General has concluded that a sustained, broad-based increase in per capita income of 3 per cent would be needed to lift people out of poverty at a rate sufficient to meet the 2015 poverty-reduction target (see A/58/323, para. 51). Economic growth, however, has slipped since the United Nations Millennium Declaration was adopted, particularly for developing countries. After growing at an average of 2.8 per cent per year during the 1990s, per capita income in developing countries increased at 1.7 per cent per year in the period 2000-2003.

6. Progress towards the poverty-reduction target at the global level is attributed mainly to progress in China and India, which together include almost half of the world's people living on less than a dollar a day. In East Asia and the Pacific, the proportion of poor people declined dramatically, from 29.4 per cent in 1990 to 14.5 per cent in 2000, already fulfilling the 2015 target.[6] In South Asia, the poverty rate fell from 41.5 to 31.9 per cent, on track to meet the 2015 target. In Latin America and the Caribbean, however, poverty remained constant at about 11 per cent, while in Africa, where almost half of the population is living in poverty, the poverty rate increased.

7. On the target of halving the proportion of hungry people by 2015 the latest estimates show a mixed picture. Over the past two decades there has been substantial progress, with the number of hungry people in the developing world declining by roughly 120 million to around 800 million in 1999-2001.[7] Most of that progress was in the 1980s, however, while in the 1990s the number of undernourished people in developing countries decreased by only 19 million, an average of 2.1 million per year. To achieve the 2015 target, progress needs to be accelerated to 26 million per year, more than 12 times the current pace.[8] East and South-East Asia are on track to meet the target, and there has been some progress since 1990 in Latin America and the Caribbean. In sub-Saharan Africa and West Asia, however, hunger has increased over the past decade.[8]

8. The hunger picture in developing countries since 1980 is composed of opposing trends: with China included, hunger showed a steep decline in the 1980s and a shallower one in the 1990s. With China excluded, there was a slight increase in hunger in the 1980s and a steep one in the 1990s.[9] Progress in India on hunger reduction in the first half of the 1990s was largely reversed in the second half, reflecting in part the effects of prolonged drought and of flooding in some northern States.[10] More recently, the food situation has dramatically improved. In much of Africa, the hunger situation deteriorated throughout the decade and, in the period 1999-2001, the malnourished proportion of the population was around 40 per cent in East and Southern Africa and almost 60 per cent in Central Africa — by far the highest in the world. In addition to 26 countries where the number of hungry people

increased throughout the 1990s, in 17 countries (including large ones like India, Indonesia, Nigeria and Pakistan) a downward trend in the early 1990s was reversed thereafter. The countries that saw hunger decrease throughout the decade had a significantly faster per capita gross domestic product and agricultural output growth, slower population growth, lower rates of HIV infection and fewer food emergencies than those that saw hunger steadily worsen.[10]

9. A number of natural, social and environmental factors contribute to continued food insecurity. Roughly 1.8 billion people, many of them poor, live on lands that are characterized by poor soils, low and unstable rainfall, steep slopes and short growing seasons, and/or that are poorly served by infrastructure and service support (e.g., roads, irrigation, markets, research and extension, credit, etc.).[11] Inadequate land tenure arrangements are another major obstacle to food security. Secure access to land is particularly important for enhancing food security of vulnerable groups, including forest dwellers, pastoralists, indigenous peoples and women. Providing more equitable and secure access to land by the poor and landless usually requires changes in national policies and legislation as well as in local institutions.[8]

10. The challenge of meeting the food security Millennium Development Goal is complicated by several adverse trends: declining investments in agricultural research; growing water scarcity in some parts of the world due to population growth (discussed in the companion report on water); climate change, which is expected to manifest itself as more extreme weather in many tropical countries; and the HIV/AIDS epidemic.[12] By one set of baseline projections, it could take almost until 2050 to halve the proportion of malnourished children in the world from the 31 per cent figure of 1997 (more than a three decade delay in achieving the Millennium Development Goal).[12] For each of the challenges mentioned, there is a corresponding opportunity to accelerate progress towards hunger eradication, though seizing them will require not only strong political will but sizeable resource commitments.

## B. Health and sustainable development

11. A healthy population is a central goal of human development. Good health is also increasingly understood to be an important determinant of human productivity. The Johannesburg Plan of Implementation, in paragraphs 53 and 54, stresses the need to address the causes of ill health, including environmental causes, as well as to strengthen the capacity of health-care systems to deliver affordable, efficient services. Among the serious health threats facing the populations of developing countries, two stand out as major contributors both to the burden of disease and to mortality: respiratory disorders (including infections) and HIV/AIDS. The former account for 13.2 per cent of global deaths and the latter for 4.9 per cent.[13] In Africa, HIV/AIDS-linked morbidity and mortality loom much larger; for this reason, and because there is a specific target in the Johannesburg Plan of Implementation to measure progress in combating HIV/AIDS, much of this section focuses on this epidemic. First, however, progress towards the infant and child mortality and maternal mortality targets (respectively, two thirds and three quarters reductions by 2015 from 2000 rates) is reviewed.

12. Mortality rates for children under five years have dropped by around 12 per cent during the past decade, albeit with large regional differences.[14] Nevertheless, no

region, except possibly Latin America, is currently on track to reach the under-five mortality goal by 2015 (Johannesburg Plan of Implementation, para. 54 (f)). In sub-Saharan Africa, the under-five mortality rate in 2002 was almost double the average for developing countries.[15] Roughly one in six children in Africa does not reach the age of five years, and 24 out of the 25 countries with the highest under-five mortality rates are in sub-Saharan Africa. While deaths from diarrhoeal diseases have been reduced substantially over the past decade, thanks in large part to oral rehydration therapy, there are still 1.8 million a year, and childhood diseases — foremost among them measles — claim another 1.4 million lives. Civil disturbances and HIV/AIDS have been particularly important obstacles to reducing child mortality.

13. Globally, little progress has been made on maternal mortality rates over the past two decades (Johannesburg Plan of Implementation, para. 54 (f)). Over half a million women die every year in pregnancy or childbirth, a ratio of 400 deaths per 100,000 live births. Regional differences are large, however, reflecting both different fertility rates, differences in access to trained health personnel and access to emergency care. Whereas in Africa 1 in every 20 women dies in pregnancy or childbirth, in Europe it is 1 in 2,400 (see table 1).[16]

Table 1
**Maternal mortality indicators, 2000**

| | *MMR[a] per 100 000 live births* | *Absolute number* | *Lifetime risk (1 in : )* |
|---|---|---|---|
| **World** | 400 | 529 000 | 74 |
| **Developed regions** | 20 | 2 500 | 2 800 |
| Europe | 24 | 1 700 | 2 400 |
| **Developing regions** | 440 | 527 000 | 61 |
| **Africa** | 830 | 251 000 | 20 |
| Northern Africa | 130 | 4 600 | 210 |
| Sub-Saharan Africa | 920 | 247 000 | 16 |
| **Asia** | 330 | 253 000 | 94 |
| Eastern Asia | 55 | 11 000 | 840 |
| South-Central Asia | 520 | 207 000 | 46 |
| South-East Asia | 210 | 25 000 | 140 |
| Western Asia | 190 | 9 800 | 120 |
| **Latin America and the Caribbean** | 190 | 22 000 | 160 |
| **Oceania[b]** | 240 | 530 | 83 |

[a] Maternal mortality ratio.

[b] Japan, Australia and New Zealand have been excluded here and included, with Canada, Europe and the United States of America in developed regions.

*Source*: World Health Organization (WHO), United Nations Children's Fund (UNICEF) and United Nations Population Fund (UNFPA), Maternal mortality in 2000.

14. The number of people living with HIV/AIDS increased by an estimated 2 million in 2003 to about 40 million, as a result of 5 million new infections and 3

million deaths from AIDS-related causes.[17] The 2003 *AIDS epidemic update* notes that: "Globally, the AIDS response is moving into a new phase. Political commitment has grown stronger, grass-roots mobilization is becoming more dynamic, funding is increasing, treatment programmes are shifting into gear, and prevention efforts are being expanded. ... But, measured against the scale of the global epidemic, the current pace and scope of the world's response to HIV/AIDS fall far short of what is required".[17] The goal of reducing HIV prevalence by 25 per cent in the most affected countries by 2005 (Johannesburg Plan of Implementation, para. 55) is unlikely to be met. Stigma and discrimination rank high among the obstacles that hinder efforts to meet the goal. A few countries, including Cambodia, Senegal, Thailand and Uganda, have demonstrated that concerted efforts can reduce the spread of HIV/AIDS.

15. Two thirds of people living with HIV/AIDS, and almost two thirds of the new HIV infections in 2003 are in sub-Saharan Africa. However, the highest growth rates in new infections were reported in Eastern Europe and Central Asia, and in East Asia.[17] Life expectancy has fallen by more than 10 years in the most affected countries since the beginning of the epidemic.[18]

16. Globally, only about 7 per cent of the people who need anti-retroviral treatment have access to it; in sub-Saharan Africa, it is only about 2 per cent (see box 1 on new initiatives). The decision on the Trade-Related Aspects of Intellectual Property Rights (TRIPS) Agreement and Public Health reached in August 2003 now allows developing countries to import generic drugs for such purposes if they lack capacity to produce them (Johannesburg Plan of Implementation, para. 100). The Agreement will reduce the costs for anti-retroviral treatment substantially, but for many of the poorest countries, drug costs could remain prohibitive. Moreover, improved availability of anti-retroviral drugs will need to be accompanied by improvements in health-care systems, which in many countries lack trained doctors and nurses as well as infrastructure to cope with the increasing demands from HIV/AIDS.[19] There is also still an urgent need for HIV/AIDS prevention measures. Currently less than 1 in 4 people at risk of infection have access to basic information regarding HIV/AIDS (see A/58/184, para. 8). The prevention effort faces the challenge of having to address a broader audience as the epidemic spreads from high-risk groups to the general population.

17. The vast majority of people living with HIV/AIDS are in their productive prime, and the effects of HIV/AIDS are first visible at the household level, where income loss, costs of medication and other costs are pushing many families into poverty.[20] Economic development is retarded owing to a loss of productive labour, reduced consumption attributed to a drop in household income and direction of scarce financial resources towards caring for the infirm.[20] Education systems are suffering from both a loss of trained, experienced teachers and children dropping out.[21] Particularly affected are 13 million children under 15, 11 million in sub-Saharan Africa who have lost one or both parents to HIV/AIDS. HIV/AIDS is thus undermining efforts on the commitments to education, poverty reduction and economic development.

Box 1
**New initiatives in treatment of HIV/AIDS**

Treatment of HIV/AIDS and access to anti-retroviral treatment in poor countries, which has long been considered beyond those countries' means, have more recently moved to the centre of discussion. Much progress has been made in providing affordable treatment. While in early 2000 the annual anti-retroviral treatment cost was $10,000 to $12,000 per person, the price dropped to $500-$800 in late 2000 and to $675 for brand name drugs and $300 for generic drugs in May 2003. The Clinton Foundation recently reached an agreement with Indian and South African companies to provide anti-retroviral treatment for 37 cents per day per person (or $135 per year). While still high relative to per capita income of many poor countries, treatment costs can be expected to fall further, becoming a less formidable obstacle to treatment and highlighting others — notably the weakness of national health sectors and the lack of trained doctors and nurses.

On 1 December 2003, WHO and the Joint United Nations Programme on HIV/AIDS (UNAIDS) released a plan to provide anti-retroviral treatment to 3 million people in developing countries and to countries with economies in transition by 2005. Implementation of the strategy, which includes the provision of simplified, standardized tools to deliver anti-retroviral therapy, a new service to ensure access to quality medicines and diagnostic tools at the best prices, and the training of thousands of community health workers, will require about $5.5 billion funding over the next two years.

*Sources*: Fact sheet on Access to HIV Treatment and Care, UNAIDS; "India plans free AIDS therapy, but effort hinges on price accord with drug makers", *The New York Times*, 1 December 2003; and WHO press release, 1 December 2003.

18. Political and financial support for the fight against HIV/AIDS has been growing substantially in recent years, and virtually all heavily infected countries now have multisectoral HIV/AIDS strategic plans (Johannesburg Plan of Implementation, para. 55 (a)). About $4.7 billion from domestic and international sources will be spent on AIDS programmes in low and middle-income countries in 2003, a 20 per cent increase compared with 2002 and a 500 per cent increase over 1996.[22] International assistance to combat HIV/AIDS rose more than eight-fold from $297 million in 1996 to $2.5 billion in 2003. Announced United States and European Union increases in funding for the fight against HIV/AIDS would raise annual spending by another $1.2 billion by 2005. Yet, the amount would still fall far short of the $10.5 billion annually deemed necessary to fight the epidemic effectively in low and middle-income countries.[23] The Global Fund to Fight AIDS, Tuberculosis and Malaria is still short of the $3 billion required for 2004 and the $4.5 billion required for 2005.[24]

### C. Education for sustainable development

19. Expanding access to education is identified in Agenda 21, the Programme for the Further Implementation of Agenda 21 and the Johannesburg Plan of Implementation as essential for sustainable development. Current data suggests that about half of all countries, including over 60 per cent of the world's population, are likely to miss at least one of the three goals for education — universal primary net enrolment, improvement in adult literacy and gender parity in education.[25] High-risk countries are concentrated in South and West Asia, sub-Saharan Africa and North Africa.

20. All regions had either high or increasing primary enrolment ratios during the 1990s, although ratios in sub-Saharan Africa remain low, with less than 60 per cent of primary school-aged children in school in 2001. Total primary school enrolment in developing countries increased from 80 per cent in 1990-1991 to 82 per cent in 2000-2001. At this rate, however, most countries that have not yet achieved the goal of universal primary education (Johannesburg Plan of Implementation, para. 116 (a)) will not do so by 2015.[26] As the opportunity costs to poor families of children's school attendance are the greatest obstacle to increasing enrolments, poverty reduction is essential to achieving the goal.[27]

21. Gender parity in education (Johannesburg Plan of Implementation, para. 120) improved during the 1990s, with the global ratio of girls-to-boys enrolment in primary education increasing from 0.89 in 1990 to 0.93 in 2000. The largest improvements were in Arab States, with an increase from 0.80 to 0.89, and in South and West Asia from 0.76 to 0.84.[28] However, at least 50 countries have a high risk of not achieving gender parity in primary education in either 2005 or 2015.[26] At the secondary level, gender parity improved in all developing regions during the 1990s, but countries that have a large disparity at primary level have an even larger disparity at secondary level.[29] Still, the Arab States and West Asia also achieved dramatic improvements in female secondary enrolment.

22. In its resolution 57/254, the General Assembly proclaimed the United Nations Decade of Education for Sustainable Development starting in 2005 (Johannesburg Plan of Implementation, para. 124 (d)). In August 2003, the United Nations Educational, Scientific and Cultural Organization (UNESCO) presented a framework for international implementation of the Decade, with four major thrusts: promotion and improvement of basic education; mainstreaming of sustainable development in existing education programmes; development of public understanding and awareness of sustainability; and training of workforces to perform their work in a sustainable manner.[30] The framework is the basis for a consultative process to develop the implementation scheme, which UNESCO will present to the General Assembly in 2004.

## III. Protecting and managing the natural resource base

23. As noted above, freshwater management is addressed in detail in another report of the Secretary-General (E/CN.17/2004/4), while oceans and fisheries are treated here. In terms of employment if not output in much of the developing world, agriculture remains a dominant economic sector whose development is crucial to poverty reduction and hunger alleviation. The preponderance of poverty remains in

rural areas. Issues related to agriculture are addressed in other sections of the present report, in particular those on hunger and food security above and trade below, and also in the companion reports, notably in the report on freshwater management (E/CN.17/2004/4), in its consideration of irrigation.

## A. Oceans

24. In the effort to reduce marine pollution, 80 per cent of which arises from land-based activities, implementation of the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities has focused on the Strategic Action Plan on Municipal Wastewater (United Nations Environment Programme (UNEP)/Water Supply and Sanitation Collaborative Council/WHO/United Nations Human Settlements Programme (UN-Habitat)); prevention of physical alteration and destruction of habitats; and national programmes of action to implement the Global Programme (Johannesburg Plan of Implementation, para. 33). Since the World Summit on Sustainable Development, substantial progress has been made in the development of national programmes of action, in many cases with international assistance. To facilitate their development, the Global Programme office has published a handbook on the development and implementation of national programmes of action,[31] and progress will be evaluated at the International Hilltops to Oceans Conference to be held in May 2004[32] as part of the World Summit on Sustainable Development Hilltops to Oceans Partnership Initiative.

25. With the rapid increase in international sea-borne trade and larger and faster vessels, the introduction of alien invasive species into new environments through the release of ballast water has become the greatest threat to the marine environment from shipping activities, threatening the livelihoods of fishers and harming vulnerable fishing communities.[33] A diplomatic conference is to be held in February 2004 under the auspices of the International Maritime Organization and is expected to adopt an international convention for the control and management of ships' ballast water and sediments (Johannesburg Plan of Implementation, para. 34 (b)).

26. Marine and coastal protected areas are an important tool in the fight against marine degradation. Studies have shown that such areas benefit a variety of species in different habitats, while generating economic benefits as depleted fish stocks recover (Johannesburg Plan of Implementation, para. 32 (d)). At its seventh meeting, the Conference of the Parties to the Convention on Biological Diversity, in February 2004, will consider the establishment of new marine and coastal protected areas and the improved effectiveness of existing ones (see A/58/191, para. 28). At its September 2003 meeting, the World Parks Congress endorsed the target of establishing at least five ecologically significant high seas marine and coastal protected areas by 2008.[34] Enforcement of the protected status of high-seas areas may pose a challenge, however.

27. In its resolution 58/240 of 23 December 2003, the General Assembly addressed the sustainable use of oceans and called for the establishment by 2004 of a regular process under the United Nations for global reporting and assessment of the state of the marine environment (Johannesburg Plan of Implementation, para. 36 (b)). Work is also under way to strengthen United Nations inter-agency coordination (Johannesburg Plan of Implementation, para. 30 (c)) through the United Nations System Chief Executives Board for coordination.

## B. Fisheries

28. The implementation of Agenda 21, the Programme for the Further Implementation of Agenda 21 and the Johannesburg Plan of Implementation in the area of fisheries has not been sufficient to reverse the depletion of ocean fisheries. Globally, more than 75 per cent of fish stocks are overfished, exploited to their maximum biological limits or recovering from depletion.[35] With more than 90 per cent of global fish stocks under national jurisdiction, national implementation of international fisheries agreements[36] is key to restoring fish stocks to levels that can produce maximum sustainable yield by 2015 (Johannesburg Plan of Implementation, para. 31). Since the World Summit on Sustainable Development, 20 additional countries and the European Commission have ratified the 1995 United Nations Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, increasing the total number of parties to 51, and the General Assembly, in its resolution 58/14, approved the terms of reference for an Assistance Fund to facilitate developing countries' implementation of the Agreement. Some progress towards the sustainable management of the marine environment has also been made with the entry into force in April 2003 of the Food and Agriculture Organization of the United Nations (FAO) Compliance Agreement. However, of the 36 States that have ratified or acceded to the Fish Stocks Agreement, only 9 have also accepted the Compliance Agreement.[37]

29. Strategies for sustainable fisheries management can only be effective if the issue of illegal, unreported and unregulated fishing is also tackled. Few, if any, developing countries, and only a limited number of developed countries, are expected to meet the 2004 deadline for putting into effect the International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (Johannesburg Plan of Implementation, para. 31 (d)).[37] To date only two countries have reported national programmes of action, while the European Community, as part of its Common Fisheries Policy, has adopted a policy on illegal, unreported and unregulated fishing that underpins the elaboration of national programmes of action.[37] Efforts are under way to help developing countries in designing national programmes of action. Obstacles to the implementation of the Code of Conduct for Responsible Fisheries and related international plans of action are a lack of political will and an inability or unwillingness of some flag States to exercise full and effective control over their fishing vessels in accordance with international law.[38]

30. Progress has been made towards the 2005 target for the implementation of the international plan of action for the management of fishing capacity (Johannesburg Plan of Implementation, para. 31). Since 1991, the stock of large fishing vessels has decreased and there is an even steeper drop in the construction rate.[39] Yet, the number of smaller coastal vessels operating in or close to the exclusive economic zones has continued to expand. Obstacles to better management of fishing capacity include fishery subsidies and a lack of incentives for scrapping vessels. With the breakdown of trade negotiations at Cancun, negotiations in the World Trade Organization (WTO) on the reform of fisheries subsidies have stalled. Within FAO, however, experts have agreed on a methodology to establish the magnitude of subsidies and their impact on trade and discussions on subsidies will continue.[40]

31. Demand for fish is projected to increase by one third by 2020, mainly because of the growing demand in developing countries. With capture fisheries at or beyond the limit of sustainable yield in various regions, the bulk of the required production increase will have to come from fish farming or aquaculture.[41] At present, however, the aquaculture industry is not operating in a sustainable manner, particularly because farmed fish require up to four times as much fish feed as capture fish and because the expansion of aquaculture often results in degradation of vulnerable marine and coastal areas. To support the development of sustainable aquaculture (Johannesburg Plan of Implementation, para. 32 (h)), efforts are under way to develop guidelines for the responsible management of fish farms, international standards for the safety of fish products and a single set of science-based labelling standards.

## C. Atmosphere and climate

32. As of February 2004, the Kyoto Protocol to the United Nations Framework Convention on Climate Change had been ratified by 120 countries, accounting for 44.2 per cent of the 1990 carbon dioxide emissions by industrialized countries (Annex I countries). The Protocol is to come into force after ratification by 55 countries, accounting for 55 per cent of the industrialized country emissions, which will require ratification by either the United States or the Russian Federation. The challenge for Annex I countries that have ratified the Protocol is whether and how to implement its provisions before, or in the absence of, entry into force. Some countries — and the European Union — are now establishing legislation, regulations and mechanisms, such as emissions trading schemes, to reduce greenhouse gas emissions in accordance with the provisions of the Protocol.

33. Overall greenhouse gas emissions of industrialized countries declined by 6.6 per cent between 1990 and 2001.[42] Total emissions of countries with economies in transition decreased by 40 per cent, while the total emissions of other industrialized countries increased by 7.5 per cent. Greenhouse gas emissions from all industrialized countries are projected to increase over the period 2000-2010 to about 10 per cent above 1990 levels under business-as-usual policies, in part owing to the economic recovery in countries with economies in transition.

34. The ninth Conference of the Parties to the United Nations Framework Convention on Climate Change was held in December 2003. While no progress was made in reducing uncertainty surrounding the entry into force of the Kyoto Protocol, a major advance was the agreement on modalities and scope for including large-scale carbon-absorbing forest-management projects in the Clean Development Mechanism during the first commitment period (2008-2012).

35. Progress was also made at the ninth Conference in elaborating the modalities for funding adaptation to climate change in developing countries. In particular, the Subsidiary Body for Implementation reached agreement on the main outlines and purposes of the Special Climate Change Fund,[43] which is intended to support implementation of activities to help developing countries cope with and adapt to adverse impacts of climate change, to improve disease monitoring and early warning systems and to undertake capacity-building. It is intended to serve as a catalyst to leverage additional resources from bilateral and multilateral sources, with activities to be funded being country-driven, cost-effective and integrated into national

sustainable development and poverty reduction strategies. In relation to the Least Developed Countries Fund, a large number of national action plans on adaptation are due to be completed in 2004.

36. For the Montreal Protocol on Substances that Deplete the Ozone Layer, which has entered into force and is being implemented, a particular challenge is to provide assistance to developing countries by ensuring adequate replenishment of its fund (Johannesburg Plan of Implementation, para. 39 (b)). Funding for the period 2003-2005 is particularly important as developing countries are required to cut the use of key ozone-depleting substances by 2005. The budget for 2003-2005 adopted at the November 2002 Meeting of the Parties to the Montreal Protocol is $573 million, representing an increase of roughly $100 million over the previous budget.

37. The abundance of ozone-depleting compounds in the lower atmosphere continues to decline slowly from the 1992-1994 peak. With regard to chlorofluorocarbons, halons, carbon tetrachloride and methyl chloroform, it appears technically and economically feasible for developing countries and countries with economies in transition to phase them out by 2005 as required by the Protocol.[44] This would, however, require accelerated investments to change to ozone-depleting substances-free technologies, as well as accepting the transitional use of hydrochlorofluorocarbons, in all industries and processes now using ozone-depleting substances. The phase-out of hydrochlorofluorocarbons in new equipment and in servicing old equipment by 2005 in industrialized countries is technically feasible but expensive with the technology available today. It might also result in increased energy consumption and greenhouse gas emissions as key alternatives to ozone-depleting substances, such as hydrofluorocarbons, are high in global warming potential. Assessment of the issue of safeguarding the ozone layer and the global climate system, focusing on hydrofluorocarbons and perfluorocarbons, is currently being undertaken jointly by the Intergovernmental Panel on Climate Change and the Technical and Economic Assessment Panel of the Montreal Protocol. The phase-out of methyl bromide will be one of the main challenges in the coming years.

## D. Biodiversity

38. Over the past three decades, declines and extinctions of species have emerged as a major concern. The latest Red List of Threatened Species, compiled by the World Conservation Union, indicates that about 23 per cent (1,130) of mammals and 12 per cent (1,194) of bird species are currently threatened.[45] In addition, the Living Planet Index, developed by UNEP and the World Conservation Monitoring Centre in cooperation with the World Wildlife Fund (WWF) in order to track trends and variations in species populations, declined by about 35 per cent between 1970 and 2000 — 15 per cent for forest species populations, 35 per cent for marine species and 55 per cent for freshwater species. This rate of biodiversity loss is considered comparable with the mass extinction events that have occurred only five or six times in the history of the Earth.[46]

39. On biodiversity policy, the major development following the World Summit on Sustainable Development has been additional ratifications of the Cartagena Protocol on Biosafety, enabling it to enter into force in September 2003 (Johannesburg Plan of Implementation, para. 44). The first meeting of the Parties to the Protocol will convene in February 2004.

40. A particular challenge in relation to biodiversity will be the development of an international regime to promote the fair and equitable sharing of benefits arising out of the utilization of genetic resources, an issue under consideration within the context of the Convention on Biological Diversity as part of the international efforts to meet the Johannesburg Plan of Implementation target of reducing biodiversity loss by 2010 (para. 44) (see A/58/191). The seventh meeting of the Conference of the Parties to the Convention, to be held in February 2004, will consider the process and modality of negotiation of such a regime.

41. The Group of Like-Minded Megadiverse Countries, composed of 14 developing countries with high biodiversity, was formed in February 2002 as a mechanism for consultation and cooperation to promote their interests and priorities related to the preservation and sustainable use of biological diversity. The members of this group represent 70 per cent of the world's biological diversity and 45 per cent of its human population. They have held several meetings to promote the development of an international regime designed to achieve a fair and equitable sharing of benefits arising from the use of biodiversity and its components.

42. Presently, scientific understanding of the ecological, social and economic implications of biodiversity loss is limited and scattered. The Millennium Ecosystem Assessment[47] is designed to further this understanding through a global research endeavour involving leading scientists (roughly analogous to the Intergovernmental Panel on Climate Change). The first product of this effort — consisting of a conceptual framework — was published in September 2003, and draft chapters of the full assessment report were circulated for a first peer review on 12 January 2004.

## E. Forests

43. Efforts to promote international cooperation on sustainable forest management, implement the proposals for action of the Intergovernmental Panel on Forests/Intergovernmental Forum on Forests, and improve reporting are being undertaken by the United Nations Forum on Forests, and an assessment of progress is planned for 2005 (Johannesburg Plan of Implementation, para. 45).

44. The Collaborative Partnership on Forests, including 14 major forest-related international organizations, is supporting the United Nations Forum on Forests and implementation of the Johannesburg Plan of Implementation. Among other joint initiatives, it has established a sourcebook on funding sustainable forest management; a task force on streamlining forest-related reporting; and a web site that includes a portal on reporting.

45. By June 2003, the Global Environment Facility (GEF) had committed more than $777 million for environmental projects relating to forests, leveraging nearly $2 billion in partner co-financing. With the decision to include land degradation as a GEF focal area, GEF expects to commit about $250 million between 2003 and 2006 for projects on land degradation, with a focus on desertification and deforestation.

46. More than 150 countries encompassing 85 per cent of the world's forests continue to be actively involved in nine international processes relating to criteria and indicators for sustainable forest management. Despite varying degrees of implementation among countries, real advances have been made in developing

criteria and indicators for monitoring the effects of interventions and assessing progress over time.

47. National forest programmes are also gaining momentum (box 2), especially since the establishment of the FAO-hosted National Forest Programme Facility — a partnership of countries, international organizations and non-governmental organizations that focuses on information exchange, knowledge-sharing and capacity-building to ensure broad and meaningful participation in forest deliberations at the national level. The Programme on Forests hosted by the World Bank has also strengthened the development and implementation of national forest programmes in several countries.

48. However, despite these and other positive developments, deforestation and forest degradation are continuing at alarming rates. The biggest challenge in moving forward is securing long-term political commitment at the highest levels for sustainable forest management.

Box 2

**Technology and the control of illegal logging in the Brazilian Amazon**

IBAMA, Brazil's environmental protection agency, is stepping up its fight against deforestation, which was estimated by the National Space Research Institute at 25,500 square kilometres from August 2001 to August 2002, a 40 per cent increase over the year-earlier period, with a further increase expected in 2003. The central Government has given an emergency grant equivalent to $7 million to IBAMA to fund monitoring operations, with a focus on critical areas. Both remote sensing and field information are being used for monitoring. Rather than simply suspending illegal projects after inception, IBAMA is aiming at a pre-emptive approach. It is establishing a unified rural property licensing system, which uses satellite mapping technology to record the environmental conditions of properties, specifying in the licence details of the areas being exploited, areas to be exploited and those areas to be preserved according to current legislation. For example, the Brazilian Forest Code specifies that in Amazonia 80 per cent of woodland on any property cannot be cleared. Satellite monitoring then permits regular updating of information on the status of different properties and timely verification of illegal logging activities. IBAMA is also building a network of non-governmental organizations to help the agency to track down environmental crimes as well as educate the public.

Having pioneered the licensing system in the state of Mato Grosso, the Ministry of the Environment has negotiated its use, from 2002 onwards, in two other Amazonia states (Pará and Rondônia) with high deforestation rates, and eventually plans to institute it throughout the region.

*Sources*: Brazilian Embassy in London (see www.brazil.org.uk); and INPE web site (www.obt.inpe.br/prodes/index.html).

## F. Mountain areas

49. For the International Year of Mountains in 2002, 78 national committees or similar mechanisms were established, and many have evolved into permanent bodies to help develop and implement sustainable development strategies for mountain areas. The Mountain Forum played a major role during the Year, facilitating networking and information exchange among individuals, non-governmental organizations, Governments and other entities, and mobilizing international support for the sustainable development of mountain ecosystems (Johannesburg Plan of Implementation, para. 42). In November 2002, the Bishkek Mountain Platform was adopted, providing guidelines on improving the livelihoods of mountain people, protecting mountain ecosystems, and using mountain resources more wisely.

50. The International Partnership for Sustainable Development in Mountain Regions was launched at the World Summit on Sustainable Development in order to achieve the mountain-specific goals of the Summit, focusing on poverty and food security in mountain communities and the protection of fragile mountain ecosystems. The Partnership will build on the Inter-Agency Group on Mountains to promote alliances that link global, national and local initiatives for sustainable mountain development.

## G. Desertification

51. A major achievement in the implementation of Agenda 21 was the adoption of the United Nations Convention to Combat Desertification in Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa in 1994 and its entry into force in 1996. Until recently, however, lack of stable, predictable and substantial financial resources severely limited the Convention's implementation (Johannesburg Plan of Implementation, para. 41). By June 2003, a total of $6.7 million had been contributed by various donors to the Special Resources for the Convention to Combat Desertification Finance Account set up under the Convention, for use mainly in formulating national and regional action programmes. In October 2002, the GEF Assembly designated land degradation, primarily desertification and deforestation, as a focal area and, in September 2003, the Conference of the Parties to the Convention designated GEF as a financial mechanism of the Convention. GEF has now initiated a new operational programme on sustainable land management to mitigate the causes and impacts of land degradation on ecosystem stability, functions and services. As noted in paragraph 45, GEF expects to commit more than $250 million between 2003 and 2006 for land degradation projects focusing on desertification and deforestation, with another $250 million to fund other projects that will mitigate land degradation.

52. Major GEF projects related to desertification launched since the World Summit on Sustainable Development include: (a) the Desert Margins Programme, launched in November 2002 to arrest land degradation and conserve biodiversity in Africa's desert margins; (b) the Land Use Change Analysis as an Approach for Investigating Biodiversity Loss and Land Degradation, to help identify and monitor landscape changes associated with biodiversity loss and land degradation, and the causes of those changes; and (c) the Land Degradation Assessment in Drylands, to develop strategies, tools and methods to assess the nature, extent, severity and impacts of land degradation on ecosystems, watersheds and river basins, and carbon storage in

drylands, and to build national, regional and global assessment capacities to mitigate land degradation and establish sustainable land use and management practices.

# IV. Changing unsustainable patterns of consumption and production

53. On average, high-income economies consume more, per capita, of both materials and energy than do low-income economies. They also generate relatively large quantities of waste of all sorts, especially industrial and hazardous wastes. Over the past few decades, Governments of developed countries have instituted policies to encourage reduction of waste and conservation of energy and other resources, with some success.[48] In those countries and regions where incentives to conservation have been strongest (e.g., in the form of high energy taxes), reductions in resource use intensity have been greatest. In the developing world, growing prosperity will mean higher per capita energy and materials consumption, but by learning from the experience of the developed countries and acquiring their technologies, there is the possibility to follow a path of industrial and economic development that is consistently less intensive in resource use and less environmentally destructive than that followed by the early industrializers.

## A. Ten-Year Framework of Programmes for Sustainable Consumption and Production: the Marrakesh Process

54. To promote international cooperation in changing unsustainable patterns of consumption and production, the Department of Economic and Social Affairs, in cooperation with UNEP, organized an International Expert Meeting on a 10-Year Framework of Programmes for Sustainable Consumption and Production at Marrakesh, Morocco, in June 2003 (Johannesburg Plan of Implementation, para. 15).[49] The meeting launched the Marrakesh Process to develop the framework and to coordinate international activities in support of national and regional activities. A number of follow-up actions were identified, including information and experience-sharing, network-building, dissemination of best practices, and regional cooperation.

55. In order to identify regional priorities and promote regional cooperation in Latin America and the Caribbean, expert meetings have been held in Argentina (April 2003) and Nicaragua (October 2003). The Forum of Ministers of the Environment of Latin America and the Caribbean (Panama, November 2003) established a Regional Council of Governmental Experts on Sustainable Consumption and Production. For the Asia-Pacific region, expert meetings have been held in Indonesia (May 2003) and the Republic of Korea (November 2003), and further work is being pursued through the Economic and Social Commission for Asia and the Pacific. Regional expert meetings are planned for Africa, Europe and West Asia, and a second global meeting is planned for 2005. International efforts are under way to promote cleaner production, environmental management accounting, sustainable public procurement, implementation of the United Nations Guidelines for Consumer Protection, and other means of promoting sustainable consumption and production.

## B. Chemicals and hazardous waste

56. The Rotterdam Convention on Prior Informed Consent Procedures for Certain Hazardous Chemicals and Pesticides in International Trade,[50] with 58 parties as of February 2004, enters into force on 24 February 2004 (Johannesburg Plan of Implementation, para. 23 (a)). Countries have been submitting import responses and notifications at an improving rate. In November 2003, a technical assistance strategy was agreed and six new chemicals were added to the Procedures.

57. The Stockholm Convention on Persistent Organic Pollutants,[51] with 48 ratifications as of February 2004, appears set to achieve the 50 required for entry into force during 2004 (Johannesburg Plan of Implementation, para. 23 (a)), and work on implementation has started. GEF has accepted over 100 proposals for enabling activities to assist countries in the preparation of national implementation plans and over 80 countries have initiated development of national implementation plans.

Box 3
**African pesticide stockpile initiative**

Across the African continent over the past 40 years, an estimated 50,000 tons of obsolete pesticides have accumulated and are leaking into the environment, contaminating soil, water, air and food. The poor suffer most, as dangers from hazardous pesticides are often compounded in poor communities by unsafe water supplies and working conditions, illiteracy and lack of political empowerment. While some progress has been made towards an inventory of pesticide stockpiles, little has been made in cleaning them up. FAO estimates that over the past decade only 3,000 tons have been cleaned up.

To speed up the process and to prevent future accumulation, the African Stockpiles Programme was established as a 12-15 year international initiative. The total cost is estimated at $250 million, with $175 million to $200 million for clean-up and $50 million to $75 million for capacity-building and prevention. In a first phase (2004-2007), Ethiopia, Mali, Morocco, Nigeria, South Africa, Tunisia and the United Republic of Tanzania will clean up obsolete pesticides with assistance from 11 local, regional and international organizations. First-phase costs are an estimated $70 million; by September 2003, GEF had pledged $25 million.

*Source*: www.africastockpiles.org.

58. To foster implementation of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (Johannesburg Plan of Implementation, para. 23 (e)), the Conference of the Parties to the Convention, at its sixth meeting, in December 2002, agreed on a strategic plan to 2010 with an action table for 2003-2004. Progress in implementation includes the establishment of a compliance mechanism and the opening of additional regional

centres that are one of the major delivery mechanisms for capacity-building, training and technology transfer for hazardous wastes.

59. With a view to having the Globally Harmonized System of Classification and Labelling of Chemicals, as called for in Agenda 21, fully operational by 2008 (Johannesburg Plan of Implementation, para. 23 (c)), the System was endorsed by the Economic and Social Council in its resolution 2003/64 of 25 July 2003. The United Nations Institute for Training and Research and the International Labour Organization (ILO) are running the System's capacity-building pilot projects in Zambia, South Africa, Senegal and Sri Lanka, and other projects are being planned.[52]

60. The Strategic Approach to International Chemicals Management is being developed to put chemical safety issues in the development mainstream, addressing the three dimensions of sustainable development and involving a wide range of stakeholders. The first meeting of the Preparatory Committee for the Development of a Strategic Approach to International Chemicals Management, held in November 2003, started the substantive development of the Strategic Approach based on inputs from Governments, international organizations and other actors and from the Intergovernmental Forum on Chemical Safety.[53] The process is to culminate in a high-level multisector conference planned for early 2006,[54] with a view to meeting the 2020 target (Johannesburg Plan of Implementation, para. 23 (b)).

## C. Energy

61. Agenda 21, the Programme for the Further Implementation of Agenda 21 and the Johannesburg Plan of Implementation all stressed the importance for sustainable development of access to and affordability of environmentally sound energy. (As energy is to be reviewed in depth by the Commission on Sustainable Development at its fourteenth session, it is discussed only briefly here.) Although efforts have been made to improve access to electricity grids, approximately 1.6 billion people — one quarter of the world's population — remain without access to electricity (in sub-Saharan Africa, it is three quarters[55]) and 2.4 billion rely on traditional biomass for cooking and heating. One recent estimate puts total investment to 2030 for refurbishing and expanding electricity capacity in developing countries at $5 trillion to achieve an electrification rate of 78 per cent.[56]

62. A number of initiatives have been taken to promote increased access to reliable and affordable energy for sustainable development and poverty reduction (Johannesburg Plan of Implementation, para. 9). These include the United Nations Development Programme (UNDP)-World Bank Global Village Energy Partnership launched at the World Summit on Sustainable Development to bring together public and private stakeholders to ensure access to modern energy services by the poor. The LPG Challenge, a UNDP-led World Summit on Sustainable Development partnership, aims to improve access to liquified petroleum gas in rural areas. Ongoing forums such as the World Bank's Energy Forum and the Global Forum on Sustainable Energy continue to serve as catalysts for action.

63. The global share of renewable energy — excluding hydroelectricity — in electricity generation is currently 1.7 per cent.[56] To increase the share of renewables in energy supply (Johannesburg Plan of Implementation, para. 20), some countries are promoting renewable energy for the production of electricity with tax and

subsidy incentives as well as legislation, and some have taken steps to encourage the use of ethanol in gasoline.

64. A number of World Summit on Sustainable Development partnerships have been established to promote energy efficiency and cleaner energy technologies. These include the Partnership for Clean Fuels and Vehicles to eliminate lead in gasoline and reduce emissions, and the Collaborative Labeling and Appliance Standards Program, which promotes cost-effective energy-efficiency standards and labels for appliances, equipment and lighting. In addition, the Department of Economic and Social Affairs and E7 are working on a capacity development programme for the Clean Development Mechanism to support developing country efforts to utilize the Mechanism to attract clean energy investments.[57]

## D. Sustainable tourism development

65. In 2002, the international travel and tourism industry generated almost half a trillion United States dollars in revenues from more than 700 million international travellers — with the latter figure expected to more than double by 2020.[58] Ecotourism is one of the fastest growing parts of the industry, albeit from a relatively small base. In many least developed countries, and notably in the small island developing States, tourism is the primary source of foreign exchange. WTO has conducted studies suggesting that, when properly designed and managed, ecotourism can support the protection of biodiversity, create economic opportunities for isolated areas and the poor, and ensure that host communities have a voice in sustainable development. In many areas, it is one of the few feasible economic tools to finance conservation of sensitive ecosystems. WTO, with support from the United Nations Conference on Trade and Development (UNCTAD), is working to channel development assistance funds in the field of tourism towards the alleviation of poverty, with a special initiative for this purpose: sustainable tourism — eliminating poverty.

66. The World Ecotourism Summit, as part of the 2002 International Year of Ecotourism, produced the Quebec Declaration on Ecotourism, which countries are now adapting to their particular conditions (see A/58/96) (Johannesburg Plan of Implementation, para. 43). Some 48 countries have developed national strategies or plans for ecotourism, while several have set up multi-stakeholder committees to coordinate sustainable tourism development and management.

Box 4
**Community-based sustainable tourism in the Bahamas**

One example of a successful community-based sustainable tourism initiative (Johannesburg Plan of Implementation, para. 58 (g)) is Tiamo Resorts in South Andros, Bahamas. In order to preserve the vegetation, it was not built with the usual high-speed, high-tech construction methods but by hand, with local workers using machetes and chainsaws. The guest bungalows were set among the vegetation and built from a non-toxic-treated pine that is harvested from sustainable forests. The resort is the world's first to operate entirely on 100 per cent alternative energy for its electrical needs and creates hot water using solar heaters. Sewage wastewater, which is destructive to near-shore tropical ecosystems, is disposed of using low-flush, composting toilets. Micro-organisms break down the waste into healthy organic peat. "Grey" wastewater from showers, sinks and laundries are filtered for large particles, then sent through a dirt, sand and rock filter system to be cleansed. To minimize waste, biodegradable, phosphorus-free soaps are used. The environmental systems are carefully monitored at all times to ensure that they are working properly. In addition, Tiamo Resorts, in cooperation with the local community, is always looking for new, cost-effective ways to reduce or dispose of waste.

Further success stories are published under www.sidsnet.org/eco-tourism.

*Source*: www.tiamoresorts.com/world2.html.

67. In the context of the Convention on Biological Diversity, draft guidelines have been developed for sustainable tourism development for adoption by the Conference of the Parties to the Convention in February 2004.

## V. Means of implementation

68. The discussion in this section focuses on finance, trade and technology. Education, while a means of implementation, is also a fundamental element of socially inclusive development and thus is addressed in section II above.

### A. Finance

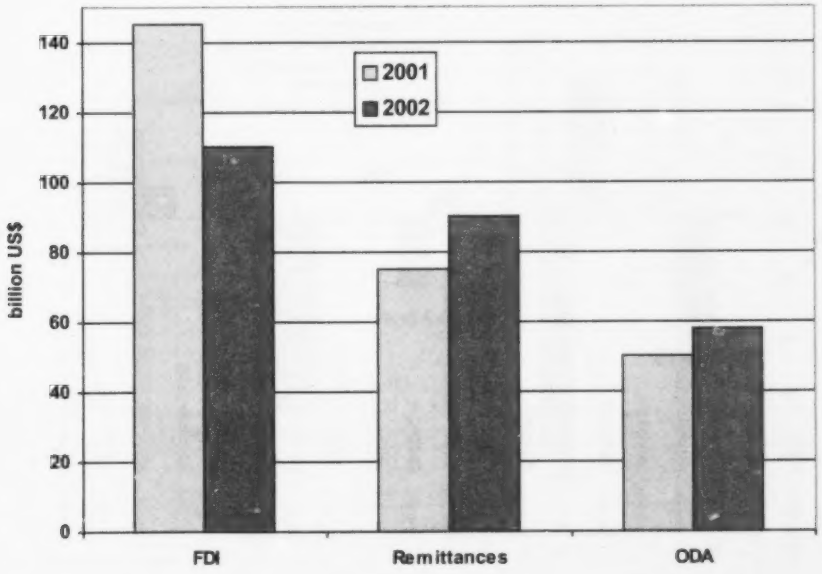
69. Investments to support implementation of sustainable development can be financed by domestic or foreign savings. The global savings rate remained roughly constant at 24 per cent between 1990 and 2001, but with large cross-country differences. In 2001, East Asia had the highest domestic savings rate, at 36 per cent, and sub-Saharan Africa the lowest, at 17 per cent.[59]

70. The Monterrey Consensus noted that corruption could be a serious barrier to effective resource mobilization and allocation. The United Nations Convention

against Corruption was approved by the General Assembly in its resolution 58/4 of 31 October 2003 and was opened for signature from December 2003, as recommended in the Johannesburg Plan of Implementation (paras. 140 and 142). The Convention will enter into force 90 days after ratification by the thirtieth country.

71. Foreign direct investment is the largest source of external finance for developing countries, followed by overseas remittances and then official development assistance (see figure 1). (Net debt flows to developing countries, which collapsed in the late 1990s, have barely returned to positive territory.[60]) Foreign direct investment flows to developing countries were estimated at $156 billion in 2003, down by almost a quarter from the 2001 level.[61] Remittances have been increasing and provide a stable and important source of finance for a number of low-income developing countries. Latin America and the Caribbean receive the largest total amount of remittances, but South Asia receives the most remittances as a share of gross domestic product, at 2.5 per cent. Official development assistance has increased in recent years, after declining in the 1990s, to $58.3 billion in 2002, representing a 7 per cent real increase from 2001.[62]

Figure 1
**Sources of external finance for developing countries, 2001 and 2002**



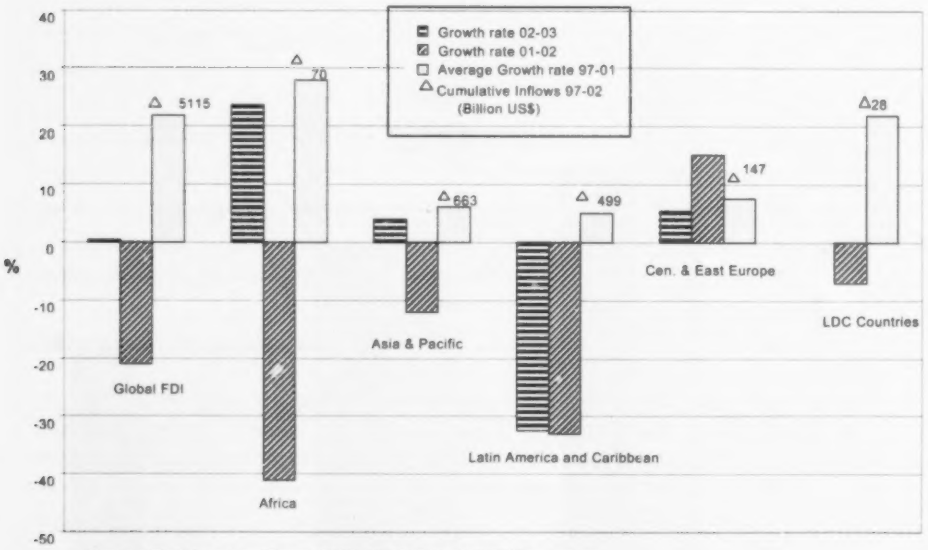

*Sources*: FDI = UNCTAD Remittances = World Bank ODA = OECD

72. At the regional level, in 2003 Latin America experienced a fourth consecutive year of decline in foreign direct investment, with inflows cut roughly in half in a space of two years (see figure 2). Foreign direct investment flows to Africa and Asia recovered somewhat between 2002 and 2003, while those to Central and Eastern

Europe continued to rise. Still, foreign direct investment flows remain highly concentrated, with China (including Hong Kong) accounting for 46 per cent of all foreign direct investment flows to the developing world and foreign direct investment to Africa being concentrated in the oil industry. Foreign direct investment inflows to least developed countries represent less than 1 per cent of global foreign direct investment and about 3 per cent of foreign direct investment to developing countries.[63]

73. Increasing competition for foreign direct investment has led many countries to liberalize foreign direct investment regimes, including through bilateral investment treaties and double taxation treaties. A liberal foreign direct investment regime cannot on its own ensure increased inflows when other factors remain unfavourable — e.g., civil unrest, macroeconomic instability, weak governance, poor infrastructure and low education levels of the workforce. The regulatory environment for business remains restrictive in many countries, discouraging entrepreneurship and leading start-up enterprises to prefer informality.[64]

Figure 2
**Foreign direct investment inflows**



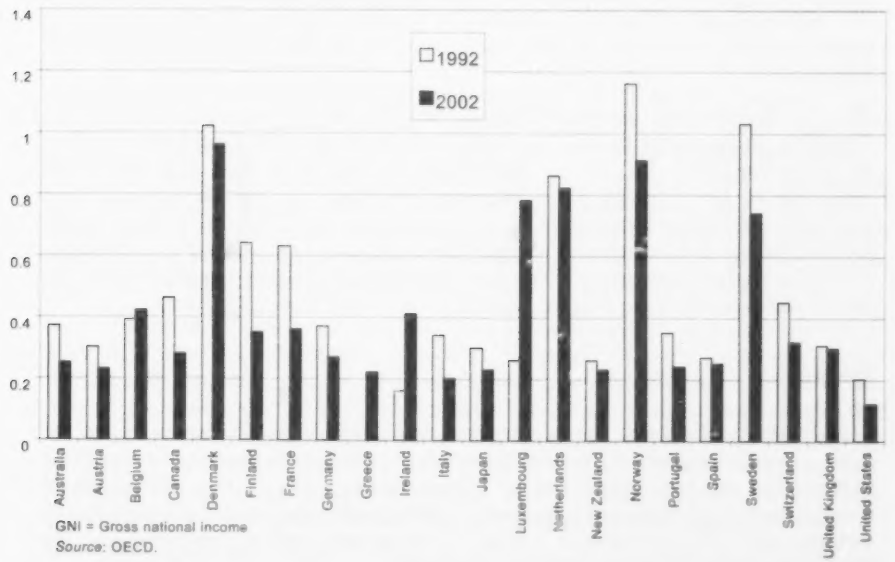

*Sources: World Investment Report (2003)* (UNCTAD) and UNCTAD estimates.

74. Average official development assistance (Johannesburg Plan of Implementation, para. 85) from countries of the Organisation for Economic Cooperation and Development (OECD) Development Assistance Committee as a proportion of gross national income grew slightly, from 0.22 per cent in 2001 to 0.23 per cent in 2002, marking an increase for the first time since 1998. In 2002,

only five countries — Denmark, Luxembourg, the Netherlands, Norway and Sweden — met or exceeded the 0.7 per cent official development assistance target reaffirmed in Agenda 21, the Programme for the Further Implementation of Agenda 21 and the Johannesburg Plan of Implementation (see figure 3).[62] The same countries met the 0.2 per cent target for official development assistance to the least developed countries.

75. It has been estimated that an additional $50 billion per year in official development assistance would be needed to implement the internationally agreed development goals, assuming that developing countries have enabling domestic environments and sound macroeconomic policies.[65] Commitments made in the context of the 2002 International Conference on Financing for Development at Monterrey could increase official development assistance flows by $16 billion per year by 2006 (see A/58/216, table 3). Although this would represent an increase of 30 per cent in real terms, it would raise the official development assistance/gross national income ratio only to 0.26 per cent by 2006 and would still leave a large financing gap (see A/58/216, para. 119).

Figure 3
**Net disbursements of official development assistance (as a percentage of gross national income)**




GNI = Gross national income
*Source*: OECD.

76. Some steps have been taken by donors to improve the effectiveness of development assistance through greater harmonization and coherence (Johannesburg Plan of Implementation, para. 85 (b)). In the Rome Declaration on Harmonization in February 2003, heads of bilateral aid agencies and multilateral institutions

committed to streamlining donor procedures and further strengthening recipient country ownership.

77. Debt service for countries under the Heavily Indebted Poor Countries Initiative (Johannesburg Plan of Implementation, para. 89) fell from $3.7 billion in 1998 to $2.4 billion in 2002, reducing the debt-to-export ratio from 16.9 per cent to 9.9 per cent.[66] Implementation of the Initiative is slower than expected, however. Between September 2002 and September 2003 only 2 countries (Benin and Mali) reached their completion points, bringing the total to 8 out of the 27 countries that have reached the decision point, compared with a target of 19 countries. Two of the eight countries that reached the completion point have already returned to a ratio of net present value of debt to exports above 150 per cent, which is regarded as unsustainable.[67] Eleven countries that are in principle eligible for heavily indebted poor countries relief have not yet reached the decision point.[68]

78. Debt relief committed to the 27 countries that have reached the decision point remains 12 per cent below the required total.[69] As of September 2003, bilateral donors had pledged $3.5 billion to the Heavily Indebted Poor Countries Trust Fund, 74 per cent of which has been paid.[70] Several small multilateral creditors and 24 creditor countries have not yet committed to participate in the Initiative. Many commercial creditors also remain reluctant to participate.[69]

79. With regard to non-heavily indebted poor countries debtor countries (Johannesburg Plan of Implementation, para. 89 (d)), in October 2003 the Paris Club of government creditors agreed on a new approach to deal with countries facing debt difficulties, as had been requested by the Group of Eight finance ministers in 2003. The new approach will tailor its response to the specific financial situation of each debtor country, instead of defining standard terms for particular classes of debtor countries.[71]

80. To facilitate the implementation of the Monterrey Consensus, the General Assembly, in its resolution 57/273, established the Finance for Development Office in December 2002. The Office supports the intergovernmental process on the follow-up to the International Conference on Financing for Development and facilitates the full participation of all stakeholders, in particular, the Bretton Woods institutions and WTO, including through the organization of a High-Level Dialogue on Financing for Development. The first High-Level Dialogue was held during the fifty-eighth session of the General Assembly, on 29 and 30 October 2003.

## B. Trade

81. While the failure to reach agreement in Cancun might further reinforce the trend towards bilateral and regional trade agreements, commitment of most WTO members to the multilateral trading system remains firm.[72] The WTO General Council held a meeting on 15 December 2003 which, while it did not lead to any concrete outcome, reconfirmed a sense of engagement and a commitment to the timely completion of the Doha Work Programme.

82. With slower economic growth, world trade experienced a marked slowdown in 2001 and 2002 after having grown at more than 6 per cent per year during the 1990s.[73] It rebounded strongly in the first half of 2003.[74] Although the share of manufactured goods in OECD imports from low and middle-income countries

increased from 41.6 per cent in 1991 to 64.3 per cent in 2001,[75] primary products still make up three fourths or more of the merchandise exports from the Middle East and sub-Saharan Africa. For the majority of countries in sub-Saharan Africa, primary products account for more than 90 per cent of exports.[76]

83. World prices of non-fuel commodities have fallen over the past 20 years by around 50 per cent, posing a major obstacle to sustainable development in many developing countries, although lower prices can benefit commodity importers.[77] Since 2002, there has been an upward price trend, driven in part by strong demand growth in China and other East Asian countries.[78] Commodity prices remain highly volatile, affecting developing countries not only as producers but also as importers, as many least developed countries are net food importers, with imports accounting for 10 to 12 per cent of calorie intake.[79]

84. For agricultural products, improvements in market access, reductions of export subsidies, and reductions in trade-distorting domestic support in agriculture (Johannesburg Plan of Implementation, para. 92 (c)) have seen little progress since the World Summit on Sustainable Development. Total producer support in OECD countries increased from $227 billion in 2001 to $235 billion in 2002 with the European Union, Japan and the United States accounting for $100 billion, $44 billion and $40 billion, respectively.[80] Although OECD countries committed themselves to a reduction in production support, such support continues to constitute two thirds of total domestic support. Export subsidies for agricultural products remained at the same level in 2002 as in 2001, albeit with wide variation across countries. In 2002, prices received by OECD farmers were on average 31 per cent above world market prices, down from 57 per cent in the period 1985-1988.[80]

85. While there has been some tariff reduction following the Uruguay Round, agricultural tariffs in the OECD area still average around 60 per cent, compared with 10 per cent for industrial tariffs. Tariff escalation, with higher tariffs on processed agricultural products, can still be found in 12 out of 17 major commodity chains.[79] Some advances have been made in recent years with respect to market access for least developed countries (Johannesburg Plan of Implementation, para. 93), with a number of OECD countries having granted comprehensive tariff- and quota-free access for least developed countries.[81] These preference margins for least developed countries risk being eroded, however, with further general tariff reductions.[82]

86. The effects of tariff reduction have been partially neutralized by a tendency by both developed and developing countries to resort to more frequent use of contingency measures, such as anti-dumping and countervailing duties. Also, in the past 20 years, new obstacles to trade in agricultural products have emerged with the proliferation of non-tariff barriers, particularly stringent sanitary and phytosanitary standards in developed countries, usually introduced in response to demands of developed country consumers.[83] Developing countries often lack both the technical expertise and the necessary financial resources to meet these new requirements.

87. The textile and clothing sector is of particular importance to developing countries, which account for 50 per cent of world textile exports and 70 per cent of clothing exports. The Uruguay Round Agreement on Textiles and Clothing expires on 1 January 2005, requiring the elimination of all quotas.[84] For developing countries, quota elimination is expected to result in income gains of $24 billion and export revenue gains of $40 billion per year. While developing countries as a whole

are expected to gain, developing countries not currently subject to the Agreement quota restraints could see their market shares erode with increased competition.[85]

88. In December 2002, the WTO General Council adopted guidelines to streamline and facilitate accession of least developed countries to WTO.[86] Nepal and Cambodia will be the first least developed countries to become members through negotiations within WTO.[87] Most donors have increased their trade-related technical assistance to developing countries bilaterally and through contributions to multilateral funds and programmes such as the Doha Development Agenda Global Trust Fund, the Joint Integrated Technical Assistance Programme and the Integrated Framework for Trade-Related Technical Assistance, including for Human and Institutional Capacity-Building, to Support Least Developed Countries in Their Trade and Trade-Related Activities. WTO and OECD have established a joint Doha Development Agenda Trade Capacity-Building Database to monitor developments in the area of trade-related technical assistance.[88]

89. In June 2003, trade ministers of the least developed countries adopted the Dhaka Declaration addressing issues of common concern, including duty-free and quota-free market access, preference erosion, agriculture, and special and differential treatment.[89] The International Ministerial Conference of Landlocked and Transit Developing Countries and Donor Countries and International Financial and Development Institutions on Transit Transport Cooperation, in August 2003, adopted the Almaty Programme of Action addressing five priority areas: transit policy issues; infrastructure development and maintenance; international trade and trade facilitation; international support measures; and implementation and review (see A/58/388).

## C. Technology

90. Environmental policies in developed countries and emerging economies are shifting from pollution control, largely through end-of-pipe technologies, to pollution prevention through more efficient and cleaner production processes. Many Governments have changed their regulatory frameworks to include fiscal incentives for promoting cleaner production, generating an increasing demand for cleaner technologies.[90] Globalization can stimulate the international flow of environmentally sound technologies, but a more conducive policy environment is also necessary to accelerate technology transfer to developing countries (Johannesburg Plan of Implementation, paras. 105 and 106).

91. Most international technology transfer occurs in the context of trade, foreign direct investment, and infrastructure projects, many financed by official development assistance. The improved crop varieties and farming methods generated by international agricultural, fisheries and forestry research centres are another important source of technology for developing countries. The many low-income countries that are marginal participants in world trade and flows of foreign direct investment have very little access to those two key technology channels. Declining public investment in agricultural research has slowed the development and transfer of new crop technologies, particularly those of benefit to poor farmers in developing countries. Inadequate global medical research into tropical diseases, in particular, diseases that affect mostly the poor, is another critical shortcoming. In the case of official development assistance, donors are acutely aware of the need to

incorporate technical capacity-building into their projects, but modern technologies can be costly to service and maintain in poor countries and the use of multiple technologies for a given application — like water pumps — compounds problems of capacity-building.

92. The Doha Ministerial Declaration included for the first time a mandate for WTO members to look at the links between trade and technology transfer and established a working group for that purpose. So far, no recommendations have been agreed on. As for technology transfer to least developed countries, the WTO TRIPS Council decided in February 2003 that its members should submit annual reports on actions undertaken or planned to facilitate such transfer pursuant to article 66.2 of the TRIPS Agreement.

93. The availability of information and communication technologies (Johannesburg Plan of Implementation, para. 112) in developing countries is still limited, but, with rapidly falling costs, it has improved markedly over the last decade, with the percentage of people having access to telephone services increasing from 2.4 per cent in 1990 to 20.8 per cent in 2002, and those with computer and Internet access from 0.3 per cent to 3.2 per cent. However, a wide gap remains with developed countries. Moreover, availability of these technologies is widely uneven among developing countries, with sub-Saharan Africa and South Asia lagging behind (see A/58/323, table 18). Narrowing this digital divide will be a key task for the World Summit on the Information Society, with the first phase held at Geneva in December 2003 and the second to be held at Tunis in November 2005. The first phase resulted in a Declaration of Principles and an Action Plan[91] setting forth a vision and covering the essential issues associated with the information society. In particular, it emphasized that information and communication technologies applications should benefit all aspects of life, further environmental protection and natural resources management, contribute to sustainable production and consumption patterns and reduce traditional barriers to equitable access to local and global markets.

## D. Corporate social responsibility

94. Industry and other stakeholders have continued to develop programmes on corporate social responsibility (Johannesburg Plan of Implementation, para. 49) in response to the globalization of production and concern in developed countries over working conditions in developing countries. Pressure has been brought to bear particularly on large transnational companies with well-known brand names and extensive supply chains in developing countries, calling on these companies to ensure that their supply chains conform to international core labour standards and to contribute to host countries' sustainable development efforts. Companies have responded by developing codes of conduct and monitoring systems for themselves and their suppliers. Since the first corporate code of conduct was developed in 1991, about 1,000 have been adopted. A number of third-party assessment and certification systems have also been established, in some cases in cooperation with non-governmental, workers' and other organizations. Some developing country Governments are encouraging corporate social responsibility in their enterprises, to promote both national sustainable development and exports. The number of companies and facilities covered by these systems, while still very small in global terms, is growing and the systems are being strengthened.[92]

# VI. Institutional and strategic framework for sustainable development

## A. International and regional initiatives for capacity-building and partnerships

95. Efforts have been undertaken through the United Nations system and other international and regional organizations to enhance partnerships for sustainable development among governmental and non-governmental actors and to promote participation of major groups (Johannesburg Plan of Implementation, chap. IX). Regional implementation forums have been held in preparation for the twelfth session of the Commission on Sustainable Development and regional reports have been prepared in cooperation with the regional commissions and other regional and subregional organizations.

96. At the regional level, the United Nations regional commissions, the regional development banks and other regional organizations have been incorporating the concept of sustainable development into their programmes, integrating economic, social and environmental aspects and building partnerships with civil society and the private sector. Recognizing that this integrated approach to development can yield certain insights beyond conventional macroeconomic and sectoral approaches but also be more complex — particularly in the context of globalization — regional organizations are addressing both their own institutional capacity-building requirements and those of their members.

## B. National strategies for sustainable development

97. Many countries, in some cases with international support, have taken steps towards the formulation of national strategies for sustainable development, integrating economic, social and environmental aspects, as called for in Agenda 21, the Programme for the Further Implementation of Agenda 21 and the Johannesburg Plan of Implementation (para. 162 (b)). In some countries, these strategies are formulated as poverty reduction strategies that integrate economic, social and environmental issues.

98. Fifty countries have reported that they have national sustainable development strategies or are developing such strategies, while 65 other countries have elements of a sustainable development strategy. Updated information on national strategies is to be submitted in national reports to the Commission at its twelfth session. The United Nations system, in particular the Department of Economic and Social Affairs and UNDP, have organized capacity-building workshops and technical assistance projects to support the formulation of national sustainable development strategies. Much support has also been provided by international non-governmental organizations.

99. National plans and macroeconomic and sectoral strategies generally address elements of sustainability but generally in a disjointed manner. In some developing countries, for example, poverty reduction strategies have been introduced as overarching strategic plans, but these are often not linked to other strategies such as the national biodiversity strategy and action plans or the national action plans to combat desertification. Nor do they generally give adequate consideration to

environmental issues — even when the state of the environment is an important factor in poverty reduction. Also, sectoral policies for agricultural, industrial or education development have in many cases not taken into account poverty reduction strategies or sound natural resource management.

## VII. Current status and future challenges

100. Considering the rather short time since the World Summit on Sustainable Development, the state of progress in implementation is moderately encouraging in certain areas. In many cases, however, new international and regional initiatives have yet to be translated into detectable improvements in indicators of human well-being and sustainable development. Thus, for the moment, implementation of the Johannesburg Plan of Implementation must be measured mostly in terms of process, although at national and local levels experience is richer and lessons are beginning to emerge. Moreover, the international political and economic environment has not been especially conducive to progress recently. Now, with world economic recovery gathering momentum, the picture may be changing, although significant challenges remain in strengthening multilateral institutions that set the framework conditions for sustainable development and in sustaining progress towards addressing global environmental problems.

101. Progress is most evident in areas where important interests are not immediately threatened or, alternatively, where a powerful constituency favours policy shifts towards more sustainable development. Also, although there have been notable successes in managing the global commons, this remains one of the most challenging areas for international environmental diplomacy, especially where national benefits are perceived to be considerably longer term and more uncertain than are national costs. Further, broad agreement on principles and frameworks is more easily achieved than are concrete and potentially painful policy and institutional reforms.

102. More specifically, measures to establish marine protected areas and reduce certain risks to the marine environment from shipping are making faster progress than is reform of fishery subsidies. Sound chemicals management commands widespread support — although some specific measures relating to costly chemicals testing may not. Building trade capacity in developing countries attracts resources from multiple donors, while reform of rich countries' agricultural policies continues to face strong resistance. When the problem of ozone depletion could be addressed by a few large chemical companies with proven substitutes for ozone-depleting substances, it was readily manageable; but once control measures were extended to affect farmers without good substitutes for ozone-depleting substances, it has become less so. Tackling climate change is perceived to have wide-ranging economic impacts, including on some major industries. A critical mass of influential companies whose long-term strategies are tightly linked to development and use of low-carbon energy sources has yet to emerge. Progress has been glacial in slowing deforestation and biodiversity loss, where global environmental benefits are largely supplied by developing countries that must agree to forego certain options for exploiting their natural resources.

103. In some cases, moral suasion has been a powerful force for change, with ethical imperatives overriding commercial interests — anti-retroviral drugs being a

case in point, and debt relief for poor countries another. The present visibility enjoyed by corporate social responsibility has contributed to making large companies sensitive to reputational influences on the bottom line.

104. At the regional level, the picture is mixed. Sub-Saharan Africa faces the biggest challenges, as HIV/AIDS combines with widespread poverty and malnutrition and inadequate infrastructure to weaken the foundation for sustainable development in many countries. Hopeful signs include the establishment of the New Partnership for Africa's Development and the determination of several regional organizations and Governments to promote pro-poor growth, including by building trade capacity, by attracting more foreign direct investment into labour-intensive sectors, and by improving political governance. After many years of decline, official development assistance levels have recently increased somewhat in real terms, and funding for HIV/AIDS prevention and treatment has grown rapidly. The resource gap remains enormous, however, as sustainable development requires investments on multiple fronts — rural roads and other transport infrastructure, electricity, water and sanitation — in addition to recurrent spending on education and health care. Continuing high fertility and rapidly growing numbers of school-aged children as well as the high and growing number of people living with HIV/AIDS are weighing heavily on the education and health sectors. Drought, desertification and land degradation are heavy burdens on many African countries, and lack of new methods to improve agricultural productivity on marginal lands is a major limitation on progress.

105. In Asia, the region with the largest number of poor people, the picture is more promising. Poverty reduction has been dramatic in East Asia and it appears to be gathering pace in South Asia, which has enjoyed high economic growth in recent years. If recent trends continue, the Millennium Development Goals of halving poverty in Asia will be achieved, perhaps well before 2015. While rising prosperity will facilitate investments in education, health and basic environmental amenities, Asia's economic success brings with it sizeable environmental challenges at multiple scales — from hazardous waste and toxic chemicals, to deforestation and biodiversity loss, to rapidly rising greenhouse gas emissions. Greater openness of economies, however, is making up-to-date, cleaner technologies more readily accessible, through both imports and foreign direct investment. At the same time, intensifying competitive pressures favour greater resource efficiency, but may also encourage regulatory avoidance where enforcement is weak.

106. Latin America and the Caribbean have fared far worse than Asia economically over the past decade. Wide income disparities have made it difficult to maintain broad support for economic reforms that create painful short-term dislocations and have so far generated little growth. While the region has a substantial industrial sector, its manufactured exports represent a far smaller share of total exports than is the case for East Asia and the Pacific or even for South Asia. As with Africa and the Middle East, commodity dependence leaves some countries vulnerable to price volatility and adverse trends. Vulnerability to natural disasters continues to be a major concern, especially of Caribbean and Central American countries. Several countries in Latin America and the Caribbean have come to depend heavily on overseas remittances, which have lately proved to be a relatively stable source of external financing compared with private capital flows. With little progress in poverty reduction and limited access to land for the rural poor, pressures on natural resources remain strong. On the other hand, one very positive development is the

steep rise in secondary school enrolments in the past half-decade. Also, in some countries, innovative approaches to environmental policy are beginning to bear fruit.

107. The West Asian region has also seen limited growth over the past decade. Continued heavy reliance on fossil fuel exports could pose a major challenge if and when concerted international action is taken to reduce greenhouse gas emissions. The flow of workers' remittances, both within the region and to South and South-East Asia, is heavily influenced by economic conditions in leading oil-exporting countries. Significant progress has been made over the past decade in raising female school enrolment rates, notably at the secondary level, though further improvement is needed. High projected regional population growth will require continued investment to sustain progress on the education front in coming decades. The perception of regional instability constitutes a major deterrent to private investment outside sectors where high expected returns can justify the risks.

108. Most countries with economies in transition are emerging from a decade of decline, when living standards and social indicators deteriorated. A number are resource-abundant and are benefiting from high oil, gas and other commodity prices. With the decline of their heavy industries, they have substantially reduced greenhouse gas emissions, but in the absence of the Kyoto Protocol they may not reap significant financial benefits from selling unused emission allowances. As several of these countries integrate into the European Union, their living standards are expected to converge fairly rapidly towards European Union levels, as are their environmental standards.

109. The developed countries are showing some global leadership towards sustainable development, but far below their potential. Official development assistance has improved slightly recently, but remains far below international targets and the requirements for achieving the Millennium Development Goals and implementing the Johannesburg Plan of Implementation and other international agreements. Markets remain quite protectionist with respect to exports of particular interest to developing countries. While efforts are being made to make consumption and production patterns more sustainable, there is considerable scope for further progress — notably in reducing per capita waste generation and greenhouse gas emissions, and in improving fisheries management. The developed countries remain the source of much technological innovation. Still, bolstering research and development into the health and nutritional problems of particular concern to poor people in the developing world remains a major challenge, as is ensuring that the products of such research are affordable. Efforts by the developed countries to develop and transfer cleaner energy technologies will be crucial to addressing climate change.

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## Inter-agency cooperation and coordination in the follow-up to the World Summit on Sustainable Development

### Report of the Secretary-General***

*Summary*

The present report outlines the decisions taken and work being carried out within the framework of the United Nations System Chief Executives Board for Coordination (CEB) to enhance inter-agency cooperation and coordination in the follow-up to the World Summit on Sustainable Development, focusing on collaborative arrangements relating to freshwater, water and sanitation, energy, oceans and coastal areas, and to changing unsustainable patterns of consumption and production. While the arrangements are being tailored to the different requirements of each thematic area, the key cross-cutting objectives include strengthening inter-agency participation and involvement, and enhancing system-wide synergy in support of the follow-up to the Summit and the work of the Commission on Sustainable Development. The High-level Committee on Programmes, on behalf of CEB, will keep under review the overall contribution of the United Nations system to Summit follow-up and will seek to ensure mutual reinforcement between that effort and inter-agency processes in the follow-up to other global conferences and the United Nations Millennium Declaration.

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# Contents


| | | Paragraphs | Page |
|---|---|---|---|
| I. | Introduction | 1–3 | 3 |
| II. | Outcomes of the World Summit on Sustainable Development and implications for the United Nations system | 4–9 | 3 |
| III. | Decisions of the United Nations System Chief Executives Board for Coordination/High-level Committee on Programmes | 10–44 | 6 |
| | A. Freshwater and water and sanitation | 10–16 | 6 |
| | B. Energy | 17–27 | 7 |
| | C. Oceans and coastal areas | 28–37 | 9 |
| | D. Changing patterns of unsustainable consumption and production | 38–44 | 11 |
| IV. | Conclusions | 45–50 | 13 |

# I. Introduction

1. In paragraph 152 of the Plan of Implementation of the World Summit on Sustainable Development (Johannesburg Plan of Implementation), as reiterated by the Economic and Social Council in paragraph 18 of its resolution 2003/61, the Secretary-General was requested to utilize the United Nations System Chief Executives Board for Coordination (CEB), including through informal collaborative efforts, to further promote system-wide cooperation and coordination in the follow-up to the Summit. The Summit recognized the need to strengthen United Nations inter-agency coordination and to enhance the effectiveness and efficiency of system-wide activities through increasing synergy, and limiting overlap and duplication.

2. At its eleventh session, the Commission on Sustainable Development reaffirmed the importance of coordinated follow-up action. It decided, inter alia, to organize its future work in two-year implementation cycles and requested the Secretary-General to prepare a report on inter-agency cooperation and coordination activities for the Summit follow-up, taking into account the ongoing process of United Nations reform. Pursuant to Economic and Social Council resolution 2003/61, the present report has been prepared for submission to both the Council and the Commission to provide an update on the actions taken to date in achieving United Nations system-wide coordinated follow-up to the Summit.

3. CEB, with the support of its High-level Committee on Programmes (HLCP), began addressing the Summit follow-up at its fall 2002 session, continued to give orientation to the elaboration of inter-agency collaborative arrangements during 2003, and will finalize consideration of outstanding issues at its spring session in 2004. Other coordination bodies, such as the United Nations Development Group (UNDG) and the Environment Management Group, are actively contributing to inter-agency cooperation to advance integrated follow-up to the Summit and other global conferences, within the overall framework developed by CEB. As the activities are ongoing, the information provided in the present report will be supplemented when the Commission on Sustainable Development considers this issue at its twelfth session, under agenda item 5.

# II. Outcomes of the World Summit on Sustainable Development and implications for the United Nations system

4. At its second regular session in 2002, shortly after the conclusion of the Summit, the United Nations System Chief Executives Board for Coordination addressed the implications of the outcomes of the Summit for the United Nations system. Representatives of CEB member organizations welcomed the emphasis on implementation, and committed their organizations to contribute to integrated and coordinated follow-up. The representatives agreed that strategic and programmatic frameworks to advance implementation should be flexible and action-oriented, and requested HLCP to make suggestions on the steps required to maximize United Nations system support for a sustained follow-up.

5. In addressing the implications of the Summit outcomes for inter-agency work, HLCP highlighted the responsibility of the United Nations system to assist Governments in focusing sharply on implementation — based on a coherent

framework of action tied to the agreed goals of the Millennium Summit of the United Nations, the International Conference on Financing for Development and the World Summit on Sustainable Development — and to promote enhanced inter-agency coordination and collaboration at all levels, particularly in the field, building synergy with the outcomes of other United Nations conferences. HLCP stressed the need for the plans of United Nations system agencies for the implementation of Summit outcomes to be consistent with country development and poverty eradication strategies, to have demonstrable results and to be focused on long-term sustainability. HLCP also called for a renewed effort to enhance implementation through the regional commissions and the regional frameworks of the organizations and bodies of the United Nations system. It recognized the need for all relevant stakeholders to be actively engaged in the follow-up to the Summit, based on a determination of the comparative advantage of the United Nations system and other development actors. Members of HLCP shared the view that there was a need to reorient system-wide collaborative activities at all levels in order to effectively advance those objectives.

6. HLCP recommended to CEB that United Nations system-wide support to the follow-up to the Summit should be guided by the following basic principles:

(a) Coherence and consistency in the follow-up to United Nations conferences;

(b) A unified thematic approach in order to avoid duplication;

(c) A clear division of responsibilities among the various actors in the United Nations system;

(d) Enhanced exchange of information and two-way communication;

(e) Clear support for the Summit principle of integrating the three components of sustainable development, namely, economic growth, environmental protection and social development;

(f) Full ownership of the follow-up process by Governments;

(g) Enhanced focus on achieving specific goals, targets and time-bound measures;

(h) A closer link between policy work at the global level, and operational activities at the regional and country levels.

7. With regard to implementation at the regional and subregional levels, HLCP placed special emphasis on the role of the regional commissions in cooperation with other regional and subregional organizations. At the global level, HLCP concluded that the task manager system, established after the United Nations Conference on Environment and Development, should be recast to maximize policy coordination and programmatic coherence and consistency, and to allow individual agencies and organizations to contribute towards achieving specific goals and targets. It considered that future arrangements should be designed to achieve the following objectives:

(a) Focus on implementation, with greater attention paid to specific sectors and goals, without prejudice to meeting requirements for reporting and supporting normative discussions;

(b) Support and complement the follow-up mechanisms on the outcomes of other relevant United Nations conferences held during the last decade;

(c) Promote stronger linkage between global intergovernmental deliberations and implementation measures at the country level;

(d) Promote flexible, action-oriented, innovative and inclusive approaches for launching implementation initiatives, based on the comparative advantage of different United Nations institutions and the level of engagement of non-United Nations actors;

(e) Apply the issue management approach, wherever possible;

(f) Advance a genuine integration of the three components of sustainable development.

8. During its spring session, in 2003, CEB endorsed the overall approaches developed by HLCP for follow-up to the Summit. CEB particularly underscored the need for coherence and consistency at the operational, regional and global levels; country ownership of the follow-up process; and the importance of giving greater attention to the regional scope of Summit follow-up. It further requested HLCP to assist in identifying ways to streamline parallel processes and avoid duplicate reporting. CEB recalled that, in October 2000, it had decided to streamline its subsidiary machinery in order to replace standing inter-agency bodies, which operated according to an established pattern of meetings and formal reporting, with collaborative arrangements that would be more flexible, more result-oriented, would allow for continued substantive interactions among agency experts in different areas, and could be adapted to the differing requirements for coordination and cooperation relative to each area. The objective was to enable CEB and its new high-level committees to concentrate on key issues and matters of strategic concern, while encouraging, at the sectoral level, more dynamic methods of work to ensure concrete progress in the different areas of inter-agency concern, engaging, wherever appropriate, new stakeholders and other key external partners. It concluded that these more flexible, differentiated, function-based approaches were well suited, and should be applied, to the extent possible, to the new collaborative arrangements to be put in place for the follow-up to the Summit.

9. With regard to the substantive aspects of the Johannesburg Plan of Implementation, CEB observed that the areas of health, agriculture, biodiversity and ecosystem management, and adequate shelter, had a clear institutional focal point within the United Nations system, which should be drawn upon to steer follow-up actions and interactions with other partners, avoiding duplication at the international, inter-agency and secretariat levels. With regard to freshwater resources as well as water and sanitation, extensive work was under way within the United Nations system and a large number of collaborative arrangements were in place. There was, however, no institutional focal point in the United Nations system. CEB, therefore, requested that consultations on substantive inter-organizational requirements be pursued in order to guide the form and tasks of such arrangements, taking into account existing mechanisms and the need to secure organized inter-agency coordination in that area. With regard to energy, and noting the diversity of activities undertaken within the United Nations system, CEB advocated a similar approach whereby the identification of substantive tasks would guide consideration of appropriate mechanisms, including modalities for engagement with key non-

United Nations system actors. It also underscored the need for more effective coordination relating to oceans and coastal areas. The specific proposals developed by HLCP for the follow-up arrangements are outlined in section III below.

# III. Decisions of the United Nations System Chief Executives Board for Coordination/High-level Committee on Programmes

## A. Freshwater and water and sanitation

10. The United Nations Millennium Declaration commits Governments to halve, by the year 2015, the proportion of people without access to safe drinking water. The Johannesburg Plan of Implementation not only reaffirmed that goal, as contained in the Millennium Declaration, but also added the issue of access to basic sanitation. It adopted four major objectives with regard to water and sanitation, namely, (a) halve, by the year 2015, the proportion of people who are unable to reach or to afford safe drinking water and the proportion of people who do not have access to basic sanitation; (b) develop integrated water resources management and water efficiency plans by 2005; (c) develop programmes for mitigating the effects of extreme water-related events; and (d) establish and/or further develop national monitoring networks and water resources databases.

11. Implementation of the water agenda emanating from the Summit and the Johannesburg Plan of Implementation will require an effective response from all stakeholders to the four objectives mentioned above. For the United Nations system in particular, it is critical to formulate collaborative strategies for the effective follow-up to the Summit and to actively promote the implementation of existing agreements within the agreed time frames. In the same spirit, the United Nations system must contribute constructively to the programme of work of the Commission on Sustainable Development and its sessions in 2004 and 2005, which will focus on water, sanitation, and human settlements.

12. The Johannesburg Plan of Implementation calls for effective coordination and decision-making among various international and intergovernmental bodies and processes concerned with water-related issues, both within the United Nations system, and between the United Nations and international financial institutions, drawing on the contributions of other international institutions and civil society; and for close coordination in elaborating and implementing activities related to the International Year of Freshwater, 2003, and beyond.

13. Within the United Nations system, water is dealt with by a number of specialized agencies, programmes and other entities. Implementation of the complex and ambitious international agenda is a collective responsibility and challenge — beginning with the United Nations system and involving other progressively non-traditional partners and stakeholders in the global, comprehensive effort.

14. Following its discontinuation in 2001, the members of the former Administrative Committee on Coordination Subcommittee on Water Resources developed new networking arrangements to continue the activities of the defunct subcommittee. In October 2002, immediately after the Johannesburg Summit, they formed a body known as "UN-Water". UN-Water brought together the senior

managers of the water-related programmes of 24 United Nations system entities, and was responsible for the preparation and publication of the first edition of the *World Water Development Report* in March 2003. The United Nations system-wide world water assessment programme, of which the *Report* is part, was created to provide the kind of global water assessment and policy advice called for by the Summit and by the Commission at its eleventh session. Its priorities are to lay the basis for implementing system-wide activities in support of the Johannesburg Plan of Implementation, the Millennium Development Goals concerning water and sanitation, and the work of the Commission.

15. UN-Water has also been gearing itself to manage new external partnerships, such as with the Global Water Partnership, the World Water Council, the Water Supply and Sanitation Council, the International Union for the Conservation of Nature, and the private sector. It has constituted a subgroup that deals specifically with sanitation issues and is planning to create one on capacity development in the near future. It has also incorporated a task force on gender and water.

16. CEB, on the recommendation of HLCP, has decided to endorse UN-Water as the inter-agency mechanism for follow-up of the water-related decisions reached at the Summit and the Millennium Development Goals concerning freshwater. It has requested UN-Water to finalize its terms of reference and modalities of work, including arrangements for progressive and effective participation of non-United Nations actors in the Summit follow-up, bearing in mind relevant guidelines established by CEB (see para. 8 above). The International Strategy for Disaster Reduction (ISDR) was similarly requested to inform HLCP on progress achieved in developing programmes, in cooperation with UN-Water, for mitigating the effects of extreme water-related events (see Johannesburg Plan of Implementation, para. 26 (d)).

## B. Energy

17. Building on the outcome of the ninth session of the Commission on Sustainable Development, the Summit identified five key areas as critical to achieving the goal of energy for sustainable development. The areas include (a) improving access to reliable, affordable, economically viable, socially acceptable and environmentally sound energy services and resources; (b) improving energy efficiency; (c) increasing the proportion of energy obtained from renewable energy sources; (d) diversifying energy supply through advanced, cleaner, more efficient, affordable and cost-effective energy technologies; and (e) implementing transport strategies that promote sustainable development.

18. The economic, social and environmental goals of sustainable development, as expressed in the United Nations conferences and summits of the 1990s, cannot be achieved unless energy is produced, distributed and utilized in fundamentally different ways in the future. Emphasis needs to be placed on the development and application of new and renewable sources of energy. A combination of public policies and private-sector incentives, complemented by efforts at the local, national, regional and international levels, is essential to achieving a sustainable energy future.

19. The work of the United Nations system in the area of energy covers a wide array of activities and is undertaken by such organizations as the United Nations

Development Programme (UNDP), the Department of Economic and Social Affairs of the United Nations Secretariat, the World Bank, the United Nations Environment Programme (UNEP), the United Nations Conference on Trade and Development (UNCTAD), the International Atomic Energy Agency, the United Nations Industrial Development Organization (UNIDO), the Food and Agriculture Organization of the United Nations, the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the World Meteorological Organization. The regional commissions also carry out significant energy activities. At the country level, most of the activities of the United Nations system focus on improved energy efficiency, renewable energy and clean fossil fuel technologies, including support for capacity development and policy dialogue.

20. Throughout the United Nations system, there is wide recognition that the issues of energy use and efficiency are closely linked to climate change. The mandates of the United Nations Framework Convention on Climate Change are crucial for future work in this area, and should be fully taken into consideration.

21. A preliminary review by HLCP of the existing capacity in the United Nations system to undertake activities in the area of energy, has identified gaps in terms of the programmatic reach of the institutions and the financial resources available to them to implement their mandates.

22. Some of the specific gaps include:

(a) Inadequate integration of energy-related aspects in the overall socio-economic development programmes and projects;

(b) Inadequacies in the quality of information, statistics and indicators; information available to support decision-making varies in quality and there are different criteria for collection of data; the measurement of progress towards targets and goals requires more accurate, accessible and relevant information than is currently available;

(c) Lack of guidance on deregulation and energy sector reform. The general trend towards market reform also holds true for the energy sector: developing countries face particular challenges and the United Nations system should be active in responding to them;

(d) Need for better integration of the normative, analytical and operational activities of the United Nations in the field of energy;

(e) Need for better balance between upstream activities dealing with policy advisory services and downstream activities dealing with operational activities at the country level;

(f) Need for more effective means:

(i) To translate global goals into country-level and sectoral action plans;

(ii) To ensure mutually reinforcing collaboration and greater policy coherence between the various intergovernmental processes relevant to energy for sustainable development and to climate change.

23. No single entity in the United Nations system has primary responsibility for energy, and independent approaches have been taken by each entity within its respective mandate. As a result, a system-wide approach to addressing energy issues

has not yet emerged. An adequate response to the call, embodied in the Johannesburg Plan of Implementation, for joint action on energy by the United Nations and other stakeholders will require more inclusive and broad-based arrangements than are currently in place. Other development actors, particularly in the private sector, have clear comparative advantages in that area and must be effectively engaged in the follow-up efforts.

24. The Ad Hoc Inter-Agency Task Force on Energy, which supported the work of the Commission on Sustainable Development at its ninth session and undertook joint activities related to the implementation of the world solar programme and the development of sustainable energy indicators, and facilitated cooperation among agencies on various partnerships launched during the Summit process, noted that a system-wide approach to energy and sustainable development should provide a reference framework for the energy-related activities of the United Nations system and the strategy should promote a balanced and mutually reinforcing approach to the economic, social and environmental aspects of sustainable energy development.

25. Owing to the complexity and interrelatedness of the issues within the broader sustainable development framework, and the diversity of mandates and approaches that currently exist, developing a coherent and coordinated response to the Summit follow-up in the area of energy presents a major and critical challenge to United Nations system efforts in support of sustainable development.

26. Guided by the above consideration, HLCP is actively pursuing consultations on the most suitable arrangements to advance collaboration and coordination in the area of energy, and will revert to the issue at its forthcoming session. HLCP is also guided by the recommendations of a subgroup of specific member organizations, which has been undertaking a review of current activities in relation to Summit mandates, and has been tasked to base its proposals on the experience to date at the inter-agency level, as well as to include provision for the participation of non-United Nations actors.

27. The findings of the subgroup will be reported to CEB at its spring session and will be made available to the Commission at its twelfth session.

## C. Oceans and coastal areas

28. The Summit emphasized that oceans, seas, islands and coastal areas form an integrated and essential component of the Earth's ecosystem and are critical for global food security and for sustaining economic prosperity. Recognizing the critical importance of those issues, the Summit adopted a number of concrete goals with regard to an ecosystem approach, fish stocks, biodiversity, protection of the marine environment, particularly from land-based activities, maritime safety, and improving the scientific understanding and assessment of marine and coastal ecosystems.

29. In adopting those goals, which cover a wide range of issues, the Summit recognized that ensuring sustainable development of the oceans will require a special effort to ensure effective coordination and cooperation, including at the global and regional levels, as well as among the relevant bodies. In that context, the Johannesburg Plan of Implementation called for steps to establish an effective, transparent and regular inter-agency coordination mechanism on ocean and coastal issues within the United Nations system. The recommendation was subsequently

endorsed by the General Assembly in its resolution 57/141, in which the Assembly invited the Secretary-General to establish an effective, transparent and regular inter-agency coordination mechanism on oceans and coastal issues within the United Nations system.

30. Prior to the restructuring of the CEB machinery, and since 1993, the Administrative Committee on Coordination Subcommittee on Oceans and Coastal Areas was the principal inter-agency mechanism focusing on the issues of environmental protection and sustainable development — a mandate derived from chapter 17 of Agenda 21. Issues related to international coordination and cooperation in that area were repeatedly raised during various intergovernmental meetings, particularly during the fourth and seventh sessions of the Commission on Sustainable Development. The United Nations Open-ended Informal Consultative Process on oceans and the law of the sea was established and mandated to address, among other questions, the issue of inter-agency coordination, which was given particular attention during its third (2002) and fourth (2003) sessions. The Informal Consultative Process has pointed to a number of functions that need to be pursued through an inter-agency mechanism, including: (a) coordinating and harmonizing United Nations system activities related to oceans; (b) reviewing programmes and activities and identifying issues with a view to updating and enriching the relationship between the United Nations Convention on the Law of the Sea and Agenda 21; (c) ensuring integrated ocean management at the international level; (d) coordinating inputs to the annual report of the Secretary-General on oceans and the law of the sea.

31. The sessions highlighted the need, fully shared at the inter-agency level, for dedicated but flexible processes to undertake joint activities that address emerging challenges and issues, such as the global marine assessment process, regional ocean governance and the development of guidelines for the application of the ecosystem approach.

32. HLCP recognized that the enhanced coordination of activities relating to oceans and coastal areas will require both review and harmonization of ongoing activities as well as the need to address emerging challenges and the launching of new joint initiatives. Collaborative arrangements that cover, inter alia, the political, legal, security, economic, social, and environmental aspects of the activities should include not only members of the former Administrative Committee on Coordination Subcommittee on Oceans and Coastal Areas but also international financial institutions and other institutions like the International Seabed Authority and the secretariats of multilateral environment treaties, such as the Convention on Biological Diversity and the United Nations Framework Convention on Climate Change.

33. In the light of the above considerations, an open-ended network that engages all relevant programmes, entities and specialized agencies of the United Nations system and the secretariats of the relevant international conventions is now being organized to ensure a continuing exchange of information and views. A steering group, composed of senior representatives of the most directly involved organizations and programmes in the network, will meet, as required, to review ongoing activities, coordinate programmes, and harmonize support for relevant deliberations at the United Nations Open-ended Informal Consultative Process. The

meetings will be scheduled according to the sessions of the United Nations Open-ended Informal Consultative Process.

34. The development of new initiatives, in response to emerging challenges that may be identified by the network, will be entrusted to task-oriented groups with well-defined terms of reference, open to the participation of non-governmental organizations and other international stakeholders. A task force, for example, could be established to focus on the coordination, planning and implementation of the global marine assessment process or on regional ocean governance.

35. The approaches to collaborative arrangements will require: (a) the intensive use of electronic communication; (b) scheduling meetings in conjunction with related intergovernmental or expert meetings; (c) the establishment of cooperative agreements among heads of agencies or responsible managers; (d) an open dialogue with non-United Nations system actors and transparent communication with all partners, including through the use of a dedicated web site. The approaches will build on, and make full use of, the experience and existing inter-agency cooperative mechanisms or projects, including the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities, the Global International Water Assessment, the United Nations Atlas of the Oceans, the Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection, and the Global Oceans Observing System, among others.

36. CEB has approved the above-mentioned approach, including the creation of an oceans and coastal areas network, which is currently elaborating detailed terms of reference and a work programme.

37. CEB has also requested the Division of Ocean Affairs and the Law of the Sea of the United Nations Secretariat to keep HLCP informed of progress achieved in the establishment, by 2004, of a regular process for global reporting and assessment of the state of the marine environment, as called for by the Johannesburg Plan of Implementation and the General Assembly in its resolution 57/141.

## D. Changing patterns of unsustainable production and consumption

38. The Johannesburg Plan of Implementation highlights the essential actions required to achieve fundamental changes in the way societies produce and consume, changes that will be indispensable for achieving global sustainable development. It also calls for a 10-year framework of programmes in support of regional and national initiatives to accelerate the shift towards sustainable consumption and production to promote social and economic development within the carrying capacity of ecosystems by addressing and, where appropriate, delinking economic growth and environmental degradation (see Johannesburg Plan of Implementation, para. 15). As follow-up to the Johannesburg Plan of Implementation, a meeting of international experts was held in Marrakesh, Morocco, from 16 to 19 June 2003, to elaborate a 10-year framework of programmes for sustainable consumption and production on the basis of the outcomes of two expert-level preparatory meetings held in Argentina and Indonesia.

39. The Marrakesh process reaffirmed the existing inter-agency collaborative arrangements and produced a 10-year framework of programmes for sustainable consumption and production with a clear set of objectives and work modalities,

including biennial meetings of experts to monitor, evaluate and guide the work of the United Nations system and other partners as follow-up to the Summit and the Johannesburg Plan of Implementation. The meetings will be supported by informal task forces or round tables.

40. The Department of Economic and Social Affairs and UNEP are the principal organizations in the United Nations system responsible for sustainable consumption and production in general, while specific issues have been handled by a number of other organizations, such as UNIDO on cleaner production, the United Nations Human Settlements Programme (UN-Habitat) and the Economic and Social Commission for Asia and the Pacific on sustainable human settlements, UNCTAD on trade and sustainability, the Secretariat of the Basel Convention on waste management, UNESCO on education for sustainable development, and the International Labour Organization on working conditions.

41. Both the Department of Economic and Social Affairs and UNEP are involved not only with broad policy questions but also with specific issues. The activities of the Department of Economic and Social Affairs include environmental management accounting, national industrial strategies for sustainable production, national policies for sustainable public procurement, indicators of sustainable consumption and production and assessments of global trends. The activities of UNEP, on the other hand, include programmes that address consumer awareness and advertising, eco-labels, the life-cycle approach, cleaner production, procurement training, procurement by international organizations, partnerships with business and financial institutions, eco-design and a product service system.

42. The Department of Economic and Social Affairs and UNEP will take the lead in convening the biennial international meetings and a regional consultative process, in collaboration with the regional commissions. In accordance with requirements, they will organize task forces, round tables and other expert-level meetings on specific issues, in consultation with other concerned organizations.

43. The Marrakesh process recognized the importance of intergovernmental and institutional communication and of inter-agency collaboration. It will also provide input into intergovernmental decision-making. It would thus appear that collaboration and coordination for follow-up to the Summit and the implementation of the Johannesburg Plan of Implementation through the 10-year framework do not require the establishment of a formal collaborative mechanism: the principal organizations involved will take the lead in carrying out tasks associated with different aspects of the framework.

44. CEB endorsed the approach adopted by the Marrakesh process and requested the lead organizations, the Department of Economic and Social Affairs and UNEP, in cooperation with other organizations concerned, in particular UNIDO and UN-Habitat, to implement the framework and keep HLCP informed of further developments in this area. The Department of Economic and Social Affairs and UNEP have been asked to consult on all aspects of work as well as to develop a joint web site to keep all interested parties fully informed, on a timely basis, of ongoing activities and other developments in the context of the framework.

# IV. Conclusions

45. The present report provides an account of the actions taken to date within the framework of CEB to organize inter-agency involvement in the follow-up to the Summit in key areas. At its twelfth session, the Commission on Sustainable Development will be informed of developments and of further actions taken since the issuance of the present report.

46. HLCP, on behalf of CEB, will oversee the overall contribution of the United Nations system to Summit follow-up and will seek to ensure mutual reinforcement between that effort and inter-agency processes in the follow-up to other global conferences and the United Nations Millennium Declaration.

47. Inter-agency arrangements for follow-up to the Summit have been designed so as to ensure well coordinated system-wide inputs to the work of the Commission in the different areas of concern, guided by the new programme of work adopted by the Commission at its eleventh session and endorsed by the Economic and Social Council.

48. The arrangements are being supplemented by inter-agency consultations, convened by the secretariat of the Commission in preparation of, and in conjunction with, the sessions of the Commission.

49. It is essential that a continuing dialogue be established between the Commission and the organizations of the United Nations system — individually as well as collectively, directly as well as through the secretariat of the Commission — to ensure that these arrangements respond to the overall policy framework that the Commission has established for Summit follow-up and to its requirements for well-coordinated inputs to its deliberations.

50. The United Nations system, through CEB and HLCP, is committed to providing coordinated support to maximize the capacity of the Commission to guide national, regional and international action for effective follow-up to the Summit, within the overall framework of the follow-up to global conferences and the United Nations Millennium Declaration.

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# Freshwater management: progress in meeting the goals, targets and commitments of Agenda 21, the Programme for the Further Implementation of Agenda 21, and the Johannesburg Plan of Implementation

**Report of the Secretary-General**

*Summary*

Consideration of freshwater management in Agenda 21 and the Johannesburg Plan of Implementation focuses on two issues: safe drinking water and integrated water resource management. Improving access to safe drinking water has been identified as a high development priority both in the Millennium Declaration and the Johannesburg Plan of Implementation.

Contaminated drinking water is a major source of illness and death in developing countries. During the 1990s, the number of people with access to improved drinking water** increased by about 900 million, from 78 per cent of the global population to 82 per cent. More than 80 per cent of those without access live in rural areas. Many countries in Asia are on track to meet the target of halving the number of people without access to safe drinking water by 2015, but in other regions, most countries are not on track. Meeting the target will require providing access to an additional 1.6 billion people by 2015, which is estimated to require a doubling of spending on drinking water supply. Contaminated water sources, inadequate maintenance of pumps and distribution systems, and leakage of water from pipes are problems that need to be overcome. Some countries are improving the financing of water supply through increased cost recovery from those who can afford to pay, with subsidies for those who cannot. Public-private partnerships for urban water supply are being explored with mixed results.

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In developing countries, most freshwater is used for agricultural irrigation, while in developed countries the largest user is industry. In both sectors, there is a large potential for increased efficiency in use, as well as reductions in pollution. Many countries have been strengthening their integrated water resource management processes, with decentralization of some aspects of water management and increased participation of local users or water user associations and other stakeholders. In many cases, this has resulted in improved water allocations, greater efficiency of use, and greater cost recovery. In the growing competition for water, the water requirements of aquatic ecosystems have been largely neglected, resulting in a deterioration of the valuable economic, social and environmental services they provide. Strengthening integrated water resource management will also require measures to reduce water-related disasters, which are a major cause of human suffering and economic damage.

** For the definition, see paragraph 10 of the report.

## Contents


| | | *Paragraphs* | *Page* |
|---|---|---|---|
| I. | Background | 1–3 | 3 |
| II. | Introduction | 4–6 | 3 |
| III. | Drinking water supply | 7–29 | 4 |
| | A. Access to safe drinking water | 7–18 | 4 |
| | B. Equity and affordability | 19–23 | 10 |
| | C. Water quality and health | 24–29 | 12 |
| IV. | Integrated water resources management | 30–56 | 13 |
| | A. Water management | 30–44 | 13 |
| | B. Water policies and institutions | 45–49 | 17 |
| | C. Protecting aquatic ecosystems | 50–54 | 19 |
| | D. Disaster prevention and management | 55–56 | 20 |
| V. | Means of implementation | 57–70 | 20 |
| | A. Finance | 57–67 | 20 |
| | B. Capacity-building | 68–70 | 23 |
| VI. | Continuing challenges | 71–79 | 25 |

# I. Background

1. The present report on freshwater development and management presents an updated review of the state of implementation of the goals and targets agreed upon in Agenda 21, the Programme for the Further Implementation of Agenda 21 and the Johannesburg Plan of Implementation of the World Summit on Sustainable Development. The report also highlights constraints and obstacles that countries have encountered in the implementation of these goals and targets, and reflects continuing challenges in the implementation process. The report in particular reviews the progress made and issues related to the implementation of the following goals and targets:

- To halve, by the year 2015, the proportion of people without access to safe drinking water
- To develop integrated water resources management and water efficiency plans by 2005, with support to developing countries
- To stop the unsustainable exploitation of water resources by developing water management strategies at the regional, national and local levels, which promote both equitable access and adequate supplies
- To promote effective coordination among the various international and intergovernmental bodies and processes working on water-related issues, both within the United Nations system and between the United Nations and international financial institutions.

2. An analysis of the following sources provided the main body of data and information presented in the present report:

- Country reports and national assessments submitted by Governments to the secretariat of the Commission on Sustainable Development
- Reports and contributions received from other United Nations agencies, including FAO, IAEA, UNDP, UNEP, UNESCO, UNICEF, WHO, the World Bank, and the secretariat of the International Strategy for Disaster Reduction
- Regional assessments prepared by the United Nations regional commissions
- The *World Water Development Report*.

3. In addition to the goals and targets agreed in the Millennium Declaration and the Johannesburg Plan of Implementation, progress is also judged against the cross-cutting issues as identified by the Commission at its eleventh session in its future work programme. Progress on two other issues related to water — sanitation and human settlements — is reviewed in two separate reports.

# II. Introduction

4. Agenda 21, the Programme for the Further Implementation of Agenda 21 and the Johannesburg Plan of Implementation recognize water resources as a critical factor in sustainable development. In recent years, however, there has been growing concern over a "global water crisis" resulting from increasing demand for finite water resources, contamination of water supplies, and degradation of ecosystems due to mismanagement of water. Underlying those factors are continuing population

growth, urbanization, industrialization and intensification of agriculture. It is recognized that water will be a critical factor in development strategies for the future, particularly in the growing number of areas where water resources are already scarce relative to the population.

5. Agenda 21 and the Johannesburg Plan particularly emphasize the importance of increasing access to safe drinking water and sanitation as a central element of poverty reduction efforts. In the Millennium Declaration and the Johannesburg Plan, time-bound targets provide further impetus to the implementation of that commitment.

6. Most analyses indicate that the "water crisis" is primarily an institutional problem reflecting lack of capacity, finance and political will to manage water resources and provide water services, rather than a water crisis as such. Knowledge, skills and technologies exist for managing water resources and providing water services for all in support of sustainable development. The present report reviews the challenges facing countries in the management of their water resources and some of the solutions that countries have found in responding to those challenges.

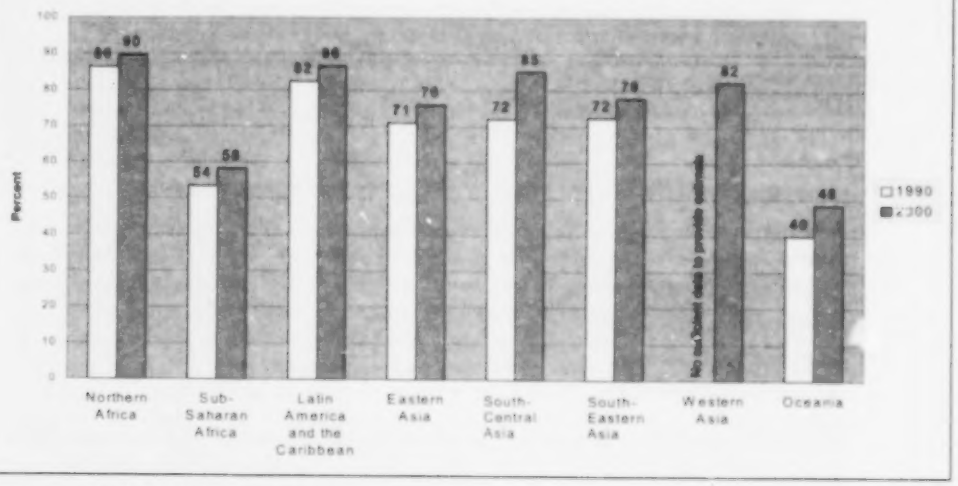
# III. Drinking water supply

## A. Access to safe drinking water

7. During the 1990s, the number of people with access to improved drinking-water supply increased by 900 million (535 million in urban areas and 365 million in rural areas), from 78 per cent of the global population in 1990 to 82 per cent in 2000, taking into account population growth. The increase was from 57 per cent to 62 per cent in Africa, 76 per cent to 81 per cent in Asia, and 82 per cent to 85 per cent in Latin America and the Caribbean. While that represents significant progress in all of those regions, the rate of increase is in most cases well below the rate required to meet the Millennium Declaration and 2015 target of the Johannesburg Plan, Asia being the exception. In Western Europe and North America, virtually 100 per cent of the population has improved drinking-water supplies. In Eastern Europe and the former Soviet Union, a significant number of people, particularly in rural areas, do not have access, but the numbers and trends have not been accurately measured.

8. The greatest gains in access to drinking water in the 1990s (see figure 1) were registered in South Asia, from 72 per cent to 85 per cent of the population, particularly due to major progress in India, Nepal, Pakistan and Sri Lanka. South Asia is therefore on track to meet the 2015 target. The lowest access rates remain in sub-Saharan Africa and Oceania, where only 58 per cent and 48 per cent of the population, respectively, have access. The challenge in sub-Saharan Africa is more complex owing to large displaced and refugee populations, countries in conflict or in reconstruction, and the HIV/AIDS pandemic.

**Figure 1: Access to improved drinking water sources**




*Source*: WHO/UNICEF: Joint Monitoring Programme, 2001.

9. In all developing regions, there are wide disparities in access to improved drinking water between urban and rural populations (table 1). Although rural areas saw greater improvements in the 1990s than urban areas — a 7 percentage-point increase in access compared with 1 percentage point — they started from a much lower base, and rural areas remain poorly served in drinking-water supply. In 2000, more than four out of five people without access to improved drinking water lived in rural areas. Urban-rural disparities are greatest in sub-Saharan Africa, where only 45 per cent of the rural population has access as opposed to 83 per cent of the urban population. In East Asia and in Latin America and the Caribbean, the urban-rural disparity is almost 30 percentage points. Those disparities exist despite the fact that it is generally less expensive to provide rural households with improved access — usually by a borehole or well — than it is to provide urban households, usually with a household piped connection or public standpipe connected to the municipal water supply. The typical cost of a borehole or well in developing countries is about $20-$50 per person served, compared with $100-$140 for a piped household connection, and $30-$60 for a standpipe.[1]

Table 1
**Population without access to improved drinking water, 2000**
(In percentage)

| *Region* | *Urban* | *Rural* | *Overall* |
|---|---|---|---|
| Sub-Saharan Africa | 17 | 55 | 42 |
| North Africa | 5 | 16 | 10 |
| West Asia | 11 | 29 | 18 |
| South Asia | 5 | 20 | 15 |
| East Asia | 6 | 34 | 23 |
| South-East Asia | 9 | 29 | 22 |
| Latin America and the Caribbean | 6 | 35 | 13 |
| Developing countries overall | 8 | 31 | 21 |
| Least developed countries | 18 | 45 | 38 |
| Eastern Europe/former Soviet Union | 5 | 18 | 9 |
| OECD countries | 0 | 0 | 0 |

*Source*: WHO/UNICEF Joint Monitoring Programme, www.wssinfo.org, 6 February 2004.

Box 1
**Progress and constraints: regional snapshots**

*Africa*: Sub-Saharan Africa has a lower rate of access to improved drinking water than other regions. The lack of progress is primarily due to inadequate water management capacities, not scarcity of freshwater. Partly as a result of contaminated drinking water and poor sanitation, the under-5 child mortality rate in Africa is higher and has declined less over the 1990s than in any other region. The Democratic Republic of the Congo, home to the largest hydrological potential on the continent, reported a decline in the number of people with access to improved drinking water. In contrast, the United Republic of Tanzania achieved a 30 percentage-point increase in water access over the 1990s.

*Asia*: Access to safe drinking water is still inadequate in parts of Asia, but several countries, notably in South Asia, have made significant progress in extending coverage during the 1990s. Others — including Bhutan, Timor-Leste, Cambodia, and Mongolia — need special attention to make progress towards the targets. A number of countries report comprehensive monitoring programmes for water quality, including China, India, Japan and Singapore.

*West Asia*: Progress has been made in the region in expanding water distribution networks, but there are still difficulties in providing access for all to safe water and sanitation and improving wastewater management, particularly in rural areas. In Lebanon, Jordan and Saudi Arabia, 100 per cent of the urban population has access to drinking-water supply, while other countries, such as Yemen and Oman, have not been making sufficient progress to meet the target.

*Latin America and the Caribbean*: In terms of safe drinking water and sanitation, access is relatively high — 80 per cent for safe drinking water and 59 per cent for sanitation. However, all countries report great disparities in services between rural and urban areas. In 2000, 94 per cent of the urban population had access to improved water services, but only two thirds of the rural population.

*Source*: National Reports submitted to the Commission on Sustainable Development in 2002.

10. The proportion of the urban population in developing countries reported to have access to an improved water source was 92 per cent in 2000. By the Joint Monitoring Programme definition, "improved" refers to a household connection, public standpipe, borehole, protected dug well, protected spring, or rainwater collection. Excluded are unprotected wells and springs, vendor-provided water, and tanker truck water.[2] The percentage seems impressive when set against the estimated 924 million people living in slums (see the companion Human Settlements Report), roughly one third of the world's urban population in 2000. It suggests that a high proportion of slum dwellers do have access to an improved water source. Many utilize standpipes or boreholes, and even those who buy water from vendors or tanker trucks may indirectly obtain it from an improved source.

11. While the data available for trends in drinking-water supply are for "improved" sources, safe drinking water also depends on the quality of the water at source. Contamination of water sources by human or animal waste, industrial waste, or natural toxic elements, such as arsenic, can render water unsafe for drinking even though it comes from an improved source. In general, there is not enough data to determine the levels or trends in access to water of a quality safe for drinking. Many cities in developing countries report that municipal drinking water often does not meet national standards for microbiological, chemical, physical or aesthetic quality. In Africa, about 36 per cent of drinking-water quality tests show violation of national standards, in Asia about 22 per cent, and in Latin America and the Caribbean about 18 per cent.[3]

12. The definition of access does not adequately capture the quality of service. In many countries, service delivery by existing water supply systems is inadequately maintained. Over one third of the urban water supplies in Africa, Latin America and the Caribbean, and more than half of those in Asia, operate intermittently. Also, many urban drinking-water systems do not treat water: one in five systems in Africa, Asia, and Latin America and the Caribbean, and two in five systems in the small islands of Oceania.

13. Water losses and leakages in urban water supply systems remain high in both developed and developing countries (see Box 2 for an example of progress in reducing water losses). Average unaccounted-for-water is around 39 per cent for large cities in Africa, 35-42 per cent for large cities in Asia, and 40 per cent for large cities in Latin America.[4] Figures for unaccounted-for-water in some water-stressed cities are even higher: 51 per cent in Algiers and 52 per cent in Amman in the 1990s.[5] Poor operation or deferred maintenance of the systems, budgetary constraints, lack of cost-recovery mechanisms, weak governance, and deficient institutional frameworks remain leading causes for the poor performance of water

supply systems. Considerable potential exists to reduce those losses through improved maintenance, better financing through cost-recovery, improved governance and management of utilities, and public awareness raising.

Box 2
**Reducing unaccounted-for-water in Spain**

The city of Murcia, Spain, with a population of 350,000, was faced with a high level of unaccounted-for-water of 44 per cent. By implementing a new commercial management system that better accounted for all water uses and users, the municipal water company reduced unaccounted-for-water to 23 per cent over five years. The resulting water savings allowed an increase in the number of water connections by 19,000 resulting in 100 per cent coverage.

*Source*: Yepes, G. (1995), cited in *Water Resources and Environment*, World Bank, 2003.

14. The condition of rural water systems is also often poor. A recent survey in rural Niger, for example, indicates that 35 per cent of the hand pumps are non-functional and 32 per cent of the small piped systems are in poor condition, yet they are still included in national statistics as "safe" water points — as they are for many other African countries.[6] Those systems suffer from deferred repairs and maintenance and non-availability of spare parts. In the Punjab Province of Pakistan, some 13 per cent of the drinking-water supply schemes are non-operational owing to factors including inadequate operation and maintenance, deterioration of water quality due to over-pumping, and social conflicts.[7] Almost one third of the water supply system of Tajikistan is completely broken down. Poor donor coordination has contributed to degradation of service delivery. In Zambia, a survey found that there were over 40 different types of hand pumps scattered all over the country, resulting in high costs for spare parts, deficient operation and maintenance, and eventual abandonment of some of those systems.

15. Based on current urban and rural access rates, and using projected population figures,[8] UNICEF has estimated that between 2000 and 2015, an additional 1.6 billion people will need to gain access to improved drinking water in order to meet the internationally agreed target, over 60 per cent of them in urban areas (table 2).

Table 2
**Additional access to improved drinking water needed to meet 2015 target**
(Millions of people)

| *Region* | *Urban* | *Rural* | *Total* |
|---|---|---|---|
| Sub-Saharan Africa | 164 | 185 | 349 |
| North Africa | 50 | 35 | 85 |
| West Asia | 57 | 24 | 81 |
| South Asia | 221 | 257 | 478 |
| Developing East Asia | 259 | 40 | 299 |
| South-East Asia | 110 | 48 | 158 |
| Latin America and the Caribbean | 124 | 17 | 141 |
| **Developing regions total** | **985** | **606** | **1 591** |
| Least developed countries | 160 | 198 | 358 |
| Eastern Europe/former Soviet Union | 26 | 0 | 27 |

Based on WHO/UNICEF: Joint Monitoring Programme, www.wssinfo.org, 6 February 2004.

16. In each region, some countries are exceptional in their progress towards achieving the internationally agreed targets (see Box 3), including the Central African Republic, Congo, Ghana, Kenya, South Africa and the United Republic of Tanzania in sub-Saharan Africa; India, Nepal and Pakistan in South Asia; Viet Nam in South-East Asia; and Morocco and Tunisia in North Africa. Progress in those countries was due to increased funding from domestic and international sources, effective resource mobilization strategies through cost-recovery mechanisms, and integrated institutional frameworks, together with effective laws and regulations.

17. Frequently noted obstacles to the implementation of internationally agreed targets are inadequate financing, deficient cost-recovery policies, fragmented institutional structures, inadequate economic mechanisms in water sector management, environmental and ecological problems arising from lack of human settlement planning, and limited public awareness. In the case of Africa, those constraints are further compounded by higher water-development and distribution costs and weak technical and institutional capacities.

18. Owing to the increasing financial and environmental costs of developing new sources of water, it is generally more cost-effective to increase the effective water supply by reducing leakage and losses. Another cost-effective approach to improving water supplies is rainwater harvesting, which has been neglected as a source of drinking water partly because of water-quality concerns. It is now gaining popularity in many developing countries in Asia, including China, Thailand, India and Sri Lanka, as it provides a sustainable solution to water scarcity.[9] Desalination of sea water is used to provide water for drinking or other high-value uses in some water-scarce West Asian countries and small island developing countries, but the high cost limits the application of desalination as a source of water in poor countries or for relatively low-value uses such as irrigation.

Box 3
**Factors influencing progress**

Examples from around the globe offer some best practices that might be adapted or replicated to accelerate progress, as well as challenges and constraints that impede implementation. For example, in India, between 1980 and 2000, access to improved drinking-water supply nearly tripled. Progress in sanitation access, though less remarkable, was steady mainly due to technological progress together with emphasis on quality control, operation and maintenance of equipment, and the promotion of good hygiene. Strong political commitment reflected in increased allocation of budgetary resources, and innovative partnerships among non-governmental organizations, government and communities were the key factors driving progress. In Ethiopia, between 1990 and 2000, access to improved drinking-water supply increased by only 2 percentage points, to 24 per cent. In Ethiopia, of more than 6,000 rural water-supply systems serving 17 million people, some 30 per cent are not functional owing to poor maintenance of infrastructure. Other factors inhibiting water services are high project-implementation costs and low investments in the sector. In Chile, almost universal coverage has been achieved in household connections to piped water supply and sewers, and progress has been made in wastewater treatment. The service is generally of high quality, the water companies are financially sound, and targeted subsidies help to ensure access by low-income groups.

*Source*: National Reports submitted to the Commission on Sustainable Development in 2002.

## B. Equity and affordability

19. The cost of supplying safe drinking water is increasing owing to a number of factors, including increased distance of new sources from consumers, increased investments associated with more efficient water-delivery systems, and increased treatment requirements to address water contamination. Mobilizing resources to meet the growing costs of expanding access, for both investments and operation and maintenance — particularly where water is subsidized — poses a major challenge. In the early 1990s, subsidies for drinking water and irrigation amounted to $45 billion per year in developing countries. However, there now appears to be a general trend towards water charges that recover more of the operation and maintenance costs.

20. Unless well targeted at low-income groups, subsidies can primarily benefit middle- and high-income urban consumers connected to the public water-supply network, whereas the urban poor, who are often not connected to the piped network, have to rely on more expensive sources of supply, such as private vendors. A recent survey of several large Asian cities found that the price charged by informal vendors is generally a multiple of the price of water from public utilities.[10] In Ghana, Guatemala, Mexico, and Peru, the richest 20 per cent of the population get about twice the amount of subsidized water services as the poorest 20 per cent.[11]

21. Water charges still remain far below the costs of water supply in many countries, especially in West Asia and North Africa. Monthly water bills in Egypt, for example, are as low as $1. Such low water charges are a disincentive for the private sector to invest in water infrastructure and for consumers to conserve water. To ensure that low-income households can afford water, there is a trend in urban water pricing towards "increasing-block" tariffs, where consumers pay a low rate for an initial small quantity for basic needs, then increasing prices for higher quantities. For the poorest households, however, even the lowest block tariffs may be expensive, and targeted subsidies for that group may continue to be needed. In many OECD countries, there has been a real increase in household water charges in recent years. Available evidence on affordability suggests that in about half the OECD countries, affordability of water charges for low-income households is either a significant issue now or could become so in the future if measures are not taken.[12]

22. With respect to private participation in the water sector, some evidence suggests that the poor have benefited: e.g., in three Latin American countries, following private participation, the poorest quintile of the population obtained between 25 per cent and 35 per cent of new connections.[13] Nonetheless, a more general review of the impact of infrastructure privatization on the poor in Latin America concludes that privatization generally failed to take the interests of the poor into account with regard to affordability of service and access to connections.[14] For poor households, the affordability of connection to the piped network is often a greater obstacle than the affordability of the water consumed, unless appropriate methods of financing the connection charges are introduced, such as instalment payments added to monthly water bills or low-interest loans.

23. Convenient access to an improved water source is particularly important to women and children living in rural areas, who often must haul water over long distances. That detracts from time and energy that could be applied to income generation and education (see Box 4).

Box 4

**Water for entrepreneurial women in Pakistan**

The Punjab Rural Water Supply Project has brought water to 325 poor and remote rural villages and transformed the lives of 800,000 people. Particular beneficiaries are women and children, who no longer have to carry water long distances. The project involved both women and men in all aspects of planning, design and implementation. Women, who previously spent two to six hours a day gathering water, found themselves with both extra time and extra energy, which was used for livelihood activities such as embroidery. Water-related diseases have been reduced by 90 per cent, household income increased by 24 per cent, and school enrolment increased by 80 per cent.

*Source*: http://www.adb.org/Documents/Events/2003/3WWF/ADB_cases.pdf#page=7.

## C. Water quality and health

24. Globally, contaminated water is still responsible for approximately 7 per cent of all deaths and diseases, with 3-4 million people dying each year of waterborne diseases. Diarrhoea alone is responsible for 8.5 per cent and 7.7 per cent of all deaths in Asia and Africa, respectively. Considerable progress has been made in reducing that toll, with the total number of people dying each year of diarrhoeal diseases, most of whom are children, declining from 4.6 million in 1982 to 1.8 million in 2002, owing to improvements in drinking water, sanitation, hygiene and medical treatment, such as oral rehydration therapy.[15] The social costs of waterborne diseases caused by sewage pollution of coastal waters alone amounts to 4 million person-years lost per year, representing an economic loss of $16 billion a year.

25. One recent success in Africa has been major progress in the eradication of guinea worm disease through improved water and hygiene interventions, public awareness campaigns and improved monitoring networks. Reported cases dropped from 3,500,000 in 1986 to 75,000 in 2000, a decline of 98 per cent.

26. OECD countries have improved the quality of the water in major rivers in recent years after they had become seriously polluted. Advanced wastewater-treatment facilities for both municipal sewage and industrial effluent, cleaner industrial production processes, restrictions on agricultural chemicals, and less polluting materials, such as low-phosphate detergents, have improved the oxygen content of the water, reduced concentrations of metals, PCBs and other toxic chemicals, and increased the numbers and variety of fish. However, some toxic chemicals remain a challenge. Extensive data-collection systems provide regular and reliable information on water quality. On international rivers, such as the Rhine and Danube, international river commissions have been established to ensure concerted action.[16]

27. While the industrialized world has made huge investments in controlling wastewater discharges, 90 per cent of wastewater in the developing world still goes untreated into local rivers and streams.[17] Where wastewater-treatment facilities exist, they are usually unreliable and inefficient. Rivers of Nepal, Central Asia, China (Yellow River) and India (Ganges) are highly polluted (see Box 5). Those and other countries have started pollution-control programmes, including legislation, public awareness raising, community-based monitoring, and stronger enforcement mechanisms. Such efforts are under way in São Paulo, for example, to bring the biologically dead Tiete River back to life through sanitation and water treatment systems. Many aquifers are also polluted, especially beneath major cities of developing countries, but the degree is unknown. Another serious problem exists in Bangladesh and the State of West Bengal in India, where about 35 million people are at risk from drinking arsenic-contaminated groundwater of natural origin.[18]

28. In peri-urban areas in developing regions, untreated municipal sewage and wastewater is often used for small-scale irrigation, especially for growing vegetables that thrive on nutrient-rich sewage, but that poses serious threats to human health. In some countries, particularly water-scarce countries of West Asia and the Mediterranean, treated wastewater is used as a source of water, usually for irrigation. Depending on the effectiveness of the treatment, such uses can be safe, although there are concerns that food crops could be contaminated if the treatment is not fully effective and reliable.

Box 5
**Water quality crisis in China**

In only 6 of China's 27 largest cities does drinking-water quality meet government standards. Groundwater does not meet standards in 23 of those cities. Water bodies near urban areas are generally the most severely polluted, and the situation is getting worse. Major threats to water quality stem from inadequate treatment of both municipal and industrial wastewater. In 1995, China discharged over 37 billion cubic metres of wastewater, not including wastewater from township and village enterprises. More than 90 per cent of urban river segments monitored are polluted to the extent that the water is unsuitable for human contact; and more than half do not meet the lowest Chinese surface water standards, meaning that the water is not even suitable for irrigation.

*Source*: Compiled from information provided in *World Resources 1998-99*, World Resources Institute/UNEP/UNDP/World Bank, and UNDP, China's National Human Development Report 2002.

29. By and large, in developing countries, water-quality control has not received adequate attention in development programmes. Progress has been especially slow in the treatment of municipal and industrial wastewater because of its capital intensity, limited availability of financial resources, weak institutional capacities, limited public awareness and demand, and poor payment capacities of consumers. Both the precautionary and the polluter-pays principles are widely endorsed by Governments, but enforcement of water-quality regulations and standards remains constrained by lack of resources and poor governance.

# IV. Integrated water resources management

## A. Water management

30. Water use has conventionally been considered in three categories: agricultural use, industrial use, and municipal use, which includes household drinking water. In recent years, increasing attention has been paid to a fourth category, the water requirements of natural ecosystems including rivers, lakes and wetlands, which provide valuable economic and social services such as fisheries, biodiversity, water purification, transportation and recreation. Globally, about two thirds of extractive water usage is for agriculture, about one quarter for industry, and about 10 per cent for municipal use. Most water used for agriculture is consumed by crops or lost to evaporation, while almost all the water used by industry and households is returned to water bodies after use, though often in polluted form. Dams and reservoirs for hydropower, water storage and flood control store water temporarily, affecting other uses of water.

31. Integrated water-resources management involves allocation of water among those competing uses, and among users within each sector, promoting productive and efficient use of the water, and protecting water quality, so as to promote long-

term economic growth, social development and environmental protection. The Johannesburg Plan of Implementation calls for the development of integrated water-resources management and water-efficiency plans by 2005. While there are indications that many countries are working on those issues, there are no adequate criteria or information to assess progress towards the target.

32. In developing countries, most water — 70 per cent to 90 per cent — is used for agriculture, and the development of water resources for irrigation has been a major factor in the growth in food production per capita in recent decades. Agricultural water use is expected to increase by about 14 per cent between 2000 and 2030, a slower rate than in the past, and slower than population growth.[19] Increasing water supplies for irrigation will be more difficult as the easiest sources have already been developed, and there are now greater concerns over the social and environmental impacts of dams. Further growth in agricultural production will therefore depend more on increasing agricultural productivity with respect to both land and water.

33. Average irrigation efficiency[20] remains low in many developing countries, ranging from 25-40 per cent for the Philippines, Thailand, India, Pakistan and Mexico, to 40-45 per cent in Malaysia and Morocco. Those figures are below what can be achieved; average figures for Israel and Japan, for example, range from 50-60 per cent. Even modest savings in agricultural water use could contribute substantially to meeting the smaller but growing water demands for industrial or household use. For example, an improvement in irrigation efficiency in the Abyan-Tuban delta of Yemen from 45 per cent to 60 per cent could result in an annual saving of 65 million cubic metres of surface water that is at present used in spate irrigation.[21] In many countries, large subsidies of irrigation water continue to undermine efforts to improve water efficiency.

34. Still, water productivity in agriculture has generally been improving as a result of institutional and policy reforms, more proactive research and extension systems promoting efficient water-management practices, and improved irrigation technologies. There is a great potential for further increasing agricultural water productivity by reducing water losses in irrigation systems, improving on-farm water-management practices, implementing demand management measures, improving operation and maintenance of the infrastructure, and shifting to less water-intensive crops.

35. Many countries are working to increase water productivity in agriculture. Water sector reform following the political change in South Africa, for example, has prioritized agricultural water demand management. In Indonesia, the main thrust of the water-reform process has been to increase agricultural productivity and improve the performance of irrigation, based on participatory management, developing and strengthening water-user associations, and facilitating access to agricultural support services and microcredit. In many areas, particularly in Asia and North Africa, rehabilitating irrigation waterways, reclaiming waterlogged and salinized lands, and recapturing lost storage capacity of reservoirs by dredging remain the biggest challenges.

36. A growing number of countries have been transferring the management of local irrigation subsystems to the farmers who use them, with the government usually retaining ownership of the infrastructure and management of the main system. In most cases, such management transfer reduces the costs of operation and maintenance, improves collection of water charges, increases water use efficiency,

makes water distribution more equitable among users, and improves responsiveness (see Box 6). In Mexico, for example, recovery of operating and maintenance costs increased from 30 per cent to 80 per cent after the government transferred management of irrigation systems to user associations. In Egypt, cropping intensity nearly doubled in farmer-managed irrigation systems, and water-user associations were able to reduce some environmental impacts, such as the salinity level in runoff. Those transfers of responsibility often occur in conjunction with reduction or elimination of government subsidies, resulting in increased water charges to farmers. That may pose financial difficulties for them, but also promotes more efficient use of the water.[22]

Box 6
**Women's involvement in irrigation management**

A study in Dakiri, Burkina Faso, shows that allocating smaller plots to men and women separately instead of allocating larger plots to household heads has produced both higher yields and social benefits. When both men and women have irrigated plots, the productivity of irrigated land and labour is higher than in households where only men have plots. Women are equally good or even better irrigation farmers than men. With increased incomes, women have become economically less dependent upon their husbands, and can support their families and increase their own opportunities for individual wealth accumulation in the form of livestock.

*Source*: Adapted from United Nations, *World Water Development Report*, 2003, p. 217.

37. Countries in South Asia have implemented extensive irrigation-improvement programmes ranging from lining of main canals to cooperative management of shared watercourses. High capital requirements constrain progress, however. Adoption of modern water-saving technologies has been slowed by limited borrowing and repayment capacities of farmers, while credit programmes to promote these technologies have been hampered by inadequate governance mechanisms.

38. In many countries, demand management measures have proven successful in conserving water resources. Both developed and developing countries have reduced subsidies for irrigation water and increased cost recovery to improve the financing of water supply and improve efficiency (see Box 7).

39. Despite efforts to improve water efficiency in irrigation, scarce water is still often used for water-intensive, low-value production at the expense of uses that would contribute more to economic and social development. Changing water allocations, however, has proven difficult in many countries. In considering proposed irrigation projects, Governments often do not give adequate consideration to economic, environmental and social sustainability in the context of integrated water-resources management.

Box 7
**Reducing demand through water pricing in Sydney**

Although Sydney has experienced steady population growth for a number of decades, water consumption has been relatively stable at around 600 million cubic metres per year over the last 20 years, as the average amount of water consumed per person has declined. One of the key factors contributing to this decrease has been the changes in water pricing over the last decade — particularly the introduction of usage-based pricing.

*Source*: http://www.sydneywater.com.au/html/environment/tsr/csgrp013.html

40. In many areas, particularly in Asia, poor management of irrigation has resulted in land degradation, reducing productivity or even rendering land entirely unsuitable for agriculture. Globally, about 20-30 million hectares of irrigated lands are severely salinized and an additional 60-80 million hectares degraded to some extent by waterlogging and salinity.[23] An example of effective physical and demand management measures in addressing land and water degradation is the Murray-Darling basin in Australia (Box 8). In another case, countries of the Nile Basin, with coordinated support by donors, are developing the "Shared Vision Programme" to create a coordination mechanism and an enabling environment for the implementation of water-management projects. On the other hand, delays in the implementation of planned initiatives in the Niger River Basin in West Africa are causing further damage to ecosystems and threatening the sustainability of many poor rural economies.

Box 8
**The Murray-Darling Basin in South Australia**

Australia is the world's driest inhabited continent. The Murray-Darling River Basin symbolizes the water crisis it faces. It has been two years since the Murray River flowed into the sea. Between 50 per cent and 80 per cent of the wetlands in the basin have been severely damaged or completely destroyed, and dryland salinity threatens some 6m hectares of Australia's best farmland by 2050. The problems stem largely from high rates of water extraction and inefficient use for agriculture, encouraged by low water prices and overallocation of irrigation licences.

In recent years, the federal and state governments have been galvanized into action. Scientific studies have recommended increased flows to prevent the Murray's mouth from silting over, to restore endangered species, and to give remaining wetlands a chance of survival. Since the 1980s, community groups and governments have worked together — with some success — on implementing salt-diversion schemes and increasing dilution flows designed to lower river salinity. Then, in November 2003, following a large-scale community engagement process, a decision was made to return 500 million cubic metres per year to the river (still only a third of the 1,500 million cubic metres minimum requirement estimated by a group of leading scientists and environmentalists).

*Source*: compiled from various sources.[24]

41. Many small island developing States and coastal zones are faced with the problem of salt-water intrusion as freshwater is pumped out of aquifers in the coastal zone, where most of the population lives. In such areas, simple "scavenger well" technology for extracting water from thin freshwater layers on top of deeper saltwater[25] has shown positive results, for example in the Marshall Islands, but adoption of the technology has been slow owing to financial constraints.

42. In the case of water for hydropower, much of the potential in developing countries remains untapped. For example, sub-Saharan Africa and Central Asia are tapping only 17 per cent and the Asia-Pacific region only about 29 per cent of the economic hydropower potential and a much smaller share of technical potential.[26] That is in part because the locations of new resources and the demand for power are often poorly matched, with the further constraint of large capital requirements and environmental and social impacts. Dam sites on international watercourses may add further international complications.

43. Most developing countries are promoting development of their industrial sectors, often with serious implications for water pollution. Environmental regulations, including effluent standards, have not kept pace with industrial growth. In many developing countries, weak water governance and regulatory enforcement mechanisms have limited industry's incentive to invest in cleaner production technologies and wastewater treatment. While developing countries are not different in that respect from the currently developed countries during their own industrialization, they can benefit from the technological advances that have occurred in the interim which have improved the efficiency of input use, including water, and reduced material wastage, hence discharges to water and other media.

44. The sustainable management of international river basins is crucial for sustainable development. There are 59 international river basins in Africa alone, accounting for 80 per cent of the continent's surface water resources. International law has not progressed much in improving cooperation among riparian States. Many long-standing water-related disputes still remain unresolved, and the growing demand for finite freshwater resources heightens the risk of future conflicts. In OECD countries, the integration of upstream and downstream interests along transboundary water bodies is receiving increasing attention. In developing countries, the Mekong River Commission represents a long-standing mechanism for cooperation and coordination among riparian States, but the absence of key upstream riparians limits its effectiveness. Countries of the Nile Basin over the last decade have also been able to develop a common vision for efficient resource management and use.

## B. Water policies and institutions

45. Lack of finance and institutional failure, exacerbated by increasing demand for water, have encouraged many countries to embark on reforms of their water sectors. The main thrust of those reforms has been to ensure better coordination in the water sector and encourage participation by major stakeholders. The results have been mixed. In some cases, decentralized management of water resources and services has yielded good results. However, failure of a large number of water-supply projects indicates the need for local decision-making in the choice of technology, as well as better coordination among donors.

46. New water laws enacted in various countries (e.g., Yemen, Madagascar, Brazil, Jamaica, Sri Lanka) are changing the rules of water governance, involving communities in water resource management and the development of sustainable water management policies. Over the years, different decentralization models have emerged. France, Morocco, Yemen, and Brazil have created water management structures to promote decentralized and participatory management at the basin level through basin committees. In several countries of South-East Asia (Thailand, Philippines, Indonesia and Malaysia), river basin organizations have been established to promote local ownership and participatory decision-making. In Kyrgyzstan, the break-up of the Soviet Union and the environmental issues surrounding the Aral Sea have prompted reforms with a focus on encouraging local management of water resources, improving on-farm water management practices, and transferring operation and maintenance responsibility to water user associations. Decentralization of service delivery, in some cases, has also promoted women's role in the provision, management and safeguarding of water resources, resulting in improved health and sanitation conditions for their families. However, experience also shows that decentralization of service delivery can be counterproductive in the absence of capacity-building programmes at the local level.

47. Successful policy and institutional reforms have led to better water allocation, financing and management in some countries. In Mexico, legal and policy changes have laid strong foundations for building stronger water-sector institutions. Chile has recently introduced legal and policy changes to address conflicts over water rights, for example between agriculture, hydropower and other uses. The main thrust of Brazil's policy reforms has been formulation and implementation of region- and sector-specific strategies, including the establishment of a water resources management authority. Morocco and Yemen have created river basin agencies and granted autonomy to public urban water supply agencies. While there is much diversity in those institutional and policy changes, similarities include the increasing importance attached to market-based allocation, stakeholder involvement, private sector participation, integrated water resources management, and economic and physical sustainability of water-supply systems.[27]

48. Managing water resources for sustainable development requires the collection, interpretation and application of data and information on water resources. In most developing countries, databases are inadequate, both quantitatively and qualitatively, not adequately characterizing either the baseline conditions or the trends. In too many places, water resource monitoring networks are deteriorating and some are not operational, basic data on water usage is not collected regularly, and conditions of supply systems have not been assessed. Reliable information systems on water require financial resources, a requirement that has not received sufficient attention from Governments and their development partners. The result of poor data is poor planning and programming. Besides lack of information on water quality and availability, the national reports submitted for the Commission on Sustainable Development point out the following major obstacles to integrated water resources management: lack of financial resources; insufficient coordination among authorities; and overlaps and inconsistencies between national and local legislation.

49. At the global level, the Global International Waters Assessment[28] — a programme led by UNEP and funded about 50 per cent by the Global Environment Facility (GEF) — uses an ecosystem-based approach to identify priority issues and policy responses for pollution mitigation and management of international waters at

the national and regional levels. Global International Waters Assessment promotes the sustainable use and integrated management of aquatic resources by presenting possible policy responses needed for alleviating problems in the 66 transboundary water regions.

## C. Protecting aquatic ecosystems

50. Protection of aquatic ecosystems is critical to sustainable development because such systems provide valuable economic and social services such as water purification and fish spawning, as well as protecting biodiversity resources. A recent study[29] concludes that freshwater ecosystems have been hit hard by reduced and altered river flow patterns, by deteriorating water quality, by infrastructure construction and by land conversion. As a result, aquatic biodiversity and fisheries dependent upon aquatic ecosystems are in global decline.

51. Current water consumption patterns are harming aquatic biodiversity and the people whose livelihoods depend on the services that aquatic ecosystems provide. In some major water basins, for example the Murray-Darling basin in Australia, the Orange River basin in South Africa, and the Huang He basin in China, almost all the available flow is being withdrawn for human use. In the case of the Huang He River, the duration of low-flow periods in the lower parts of the river increased from 40 days in the early 1990s to 200 days in 1997, and at times no water reaches the sea at all. That has placed enormous stress on more than 100 million people in the basin, undermining their capacity to grow crops, as well as taking a toll on freshwater species and habitats.

52. Half the world's wetlands have been lost in the past century, and many freshwater species are facing rapid population declines or extinction. The Aral Sea has been one of the world's worst ecological disasters — its area reduced from more than 65,000 square kilometres to about 28,500 square kilometres in 1998, with a 75 per cent decrease in volume and greatly increased salinity. In many countries, the impact of land-based pollution on coastal areas has been far-reaching, triggering algal blooms, damaging reefs, and hurting fisheries. Of the world's fish species, most of which are from inland waters, only about 10 per cent have been assessed, and 30 per cent of those are listed as threatened. Even in OECD countries, the considerable water management efforts of recent decades have not been enough to safeguard and restore water quality and aquatic ecosystems.[30]

53. Despite these worrying trends, there is considerable evidence of promising changes in many countries. Most of the 72 countries submitting national reports under the Biodiversity Convention indicate they are gathering information on inland water biodiversity and undertaking actions towards conservation and sustainable use of inland water ecosystems, and capacity-building measures.

54. The principle of "payment for environmental services" is receiving increasing attention in environmental policies and is being tested in many countries. Costa Rica's payment for environmental services system — one of the most elaborate in the developing world — pays landowners for maintaining forests that provide water services such as flow regulation and purification. In Colombia, many water user groups pay for watershed services — sometimes by buying portions of the upper watershed.

### D. Disaster prevention and management

55. A total of 2,200 major and minor water-related disasters occurred in the world in the period 1990-2001: 35 per cent in Asia, 29 per cent in Africa, 20 per cent in the Americas, 13 per cent in Europe, and about 3 per cent in Oceania. A total of 1.5 billion people were affected by floods around the world between 1991 and 2000, while economic damages due to floods in 2002 were estimated to be over $30 billion.[31] Factors that explain the increasing frequency and costs of disastrous flooding include deforestation, demographic shifts, changing land-use and human settlement patterns, and changing weather patterns. In Asia, where the majority of recent large floods have occurred, deforestation and urbanization in the 1990s increased the risk and severity of floods. In Thailand, land use changes caused a reduction of natural water storage and retention in the lower Chao Phraya River Basin, which flows through Bangkok, increasing flows by up to 3,000 cubic metres per second.

56. Nonetheless, there have been technical improvements arising from better understanding of the causes of water-related disasters, including better tools for short- and long-term forecasting and prediction, and better monitoring and modelling of disaster-related factors. There has also been increasing emphasis on reducing vulnerability to disasters. Still, disaster risk reduction is not fully integrated into development strategies and development assistance. The General Assembly adopted the International Strategy for Disaster Reduction (ISDR) disaster risk reduction as an integral part of sustainable development. The issue of human settlement development in disaster-prone areas is addressed in the report of the Secretary-General on human settlements.

## V. Means of implementation

### A. Finance

57. Current spending on new water infrastructure in developing countries is roughly $75 billion a year,[32] including investments of about $13 billion per year for drinking water supply. While the majority of people without access to improved drinking water live in rural areas, especially in Africa and Asia, it is the urban sector that has benefited most from investment in drinking water supply. In the 1990s, average annual investment in urban water supply in developing countries was $8 billion, compared to $4.6 billion in rural areas.[33] Out of the total annual investments of $15.7 billion in water supply and sanitation (1990-2000), water supply received about 80 per cent with only 20 per cent spent on sanitation, and in Africa, only 12 per cent.

58. Rapid urban population growth over the coming decade (representing an estimated 87.5 per cent of world population growth, occurring overwhelmingly in developing countries[34]) means that there will be a continued need for sizeable investments in urban water infrastructure. At the same time, given the already high urban coverage rate, the large rural-urban gap in coverage rates, and the wide disparity between water coverage and sanitation coverage, there is a case for rebalancing priorities towards rural water supply and towards sanitation generally and, particularly, in urban and peri-urban informal settlements.

59. Based on the estimated per capita costs of supplying drinking water in developing countries over the past decade, and considering that an additional 1.6 billion people will need access by 2015 to meet the drinking-water-related Millennium Development Goal, an annual average of roughly $26 billion will be needed to extend water-supply coverage over the next 11 years (including annual operating and maintenance costs assumed to be 15 per cent of investment costs). Meeting the target for sanitation could cost substantially more if wastewater treatment costs are added to those of basic sanitation infrastructure (see discussion in the report of the Secretary-General on sanitation). Global estimates of investment requirements are uncertain, however, being sensitive to assumptions about technology mix and location of population to be served. More attention needs to be given to generating reliable country-specific estimates.

60. Domestic resource mobilization for irrigation development has proven difficult owing to inadequate water-pricing policies. Irrigation water remains highly subsidized. However, there is increasing recognition of the need to price water to recover at least a significant proportion of system operation and maintenance costs. Essential complements to water pricing are water distribution rules and technological improvements in water-delivery systems to enable farmers to conserve water in response to higher prices.[35] Commercial loans and private investment in irrigation infrastructure have both declined in recent years, while development costs for new irrigated land have increased markedly. For instance, costs have increased more than 50 per cent in the Philippines, 40 per cent in Thailand, and have nearly tripled in Sri Lanka owing to high costs associated with land development and reclamation, water transfers, water distribution networks, and high pumping costs in the case of groundwater irrigation.

61. A major issue in the management and development of drinking water supply systems in recent years has concerned the role of the private sector and public-private partnerships. Private sector participation in drinking-water supply can be considered in two broad classes. The first involves large private companies — frequently multinationals. There are four broad types of large-scale private participation involving different distributions of investment risk: management and lease contracts (where the facility remains in public hands and investment decisions and financial responsibilities remain with the public sector), concessions (involving temporary takeover of management of a public utility and some investment commitment), greenfield investment in new facilities (with possible reversion of ownership of infrastructure to the public sector), and divestiture (where the private investor buys an equity stake in the state enterprise).[36] The second involves small-scale water providers engaged primarily in the provision of services and making only limited investments (e.g., in water tanker trucks, pumps, boreholes).

62. Large-scale private sector participation in water and sewerage is heavily concentrated in East Asia and the Pacific and Latin America and the Caribbean (table 3), and water projects predominate over sewerage. In South Asia and sub-Saharan Africa, private investment is virtually non-existent. In each region, some countries have emerged as leaders in terms of attracting private sector investment — including China and Malaysia in East Asia; Mexico, Brazil and Argentina in Latin America; and Morocco in North Africa. Establishment of effective institutions, implementation of legal and regulatory frameworks, and improved governance mechanisms in those countries have paved the way for private sector participation. Of the 238 projects listed in the table, 40 per cent are concessions and roughly one

third greenfield investments, fewer than 10 per cent represent divestitures of publicly owned enterprises. The relative weights of different types of participation are broadly similar across regions, though in East Asia and Pacific greenfield investments are almost as numerous as concessions and in Europe and Central Asia management contracts dominate.[37]

63. Problems that have arisen with private water companies include collusive bidding on water-supply contracts, regulators who are too readily influenced by regulated companies, inflexible contractual guarantees of returns, monopolization of essential infrastructure, and lack of transparency. More generally, doubts have been raised about the realism of the expectation that large-scale private sector participation in the water sector will make more than a minor contribution towards meeting the water-related Millennium Development Goal.[38] Only a small fraction of the world population is currently served by private providers.[39] In recent years, private investors have become more cautious and slowed investments in the water sector, having underestimated risks, overestimated profits, and encountered contractual problems — e.g., as Governments have at times sought to renegotiate contracts in the face of public discontent over water charges.

Table 3
**Private sector investment in water supply and sewerage projects, 1992-2002**

| *Region* | *Number of projects* | *Investment with private participation (in millions of US dollars)* |
|---|---|---|
| East Asia and the Pacific | 73 | 14 643 |
| Europe and Central Asia | 39 | 2 682 |
| Latin America and the Caribbean | 105 | 15 378 |
| Middle East and North Africa | 7 | 1 209 |
| South Asia | 1 | 216 |
| Sub-Saharan Africa | 13 | 67 |
| **Total** | **238** | **34 195** |

*Note:* Investment figures include private and public contributions.

*Source:* Private Participation in Infrastructure (PPI) Project Database, World Bank; http://rru.worldbank.org/PPI/about.asp.

64. In view of the apprehension about granting a local monopoly of water supply to a private company and, in particular, concerns over the social impact of increases in water charges, Governments and consumers in many developing countries have not encouraged participation by multinationals in the provision of water services. The debate in different forums has contributed to a better understanding of the potential role of the private sector, although not to a consensus on all the issues. Governments increasingly recognize that private participation need not (indeed does not) involve private ownership of the resource nor even of infrastructure (and where it does, contractual terms can make such ownership temporary). More commonly, what is involved is private management of a public utility (with varying degrees of investment risk sharing). They also appreciate the need for a strong regulatory framework to ensure that private investor behaviour — e.g., with respect to tariff setting — is consistent with the public interest. In short, private sector participation

implies a dialogue between the government, the private sector and user representatives to develop socially, economically and environmentally sound solutions to the problem of extending access to safe and affordable water.

65. The role of small-scale water providers in supplying water services can be quite substantial but has not been well documented. The small-scale water provider sector covers a wide range of water service provider types. A recent survey[40] in six African, eight Asian and six Latin American and Caribbean cities found the following arrangements: small-scale water provider partnership with the water utility; small-scale water providers providing water from their own sources (e.g., private wells) to neighbourhoods not covered by utilities; entrepreneurs who build their own systems connected to the utility mains; owners/operators/franchisers of public toilets and bathing facilities; water kiosk and standpipe operators, who are the most common providers to the urban poor.

66. A recent study by the Asian Development Bank[41] estimated that roughly 20-45 per cent of households in cities such as Cebu (Philippines), Ho Chi Minh City, Jakarta and Manila rely on water-supply services provided by small-scale water providers. In Tegucigalpa, Guatemala City, and Lima, more than 30 per cent of supply is provided by small-scale water providers.[42] Most of those consumers are not connected to the main distribution networks. The small-scale water provider market is in general quite competitive in terms of delivering services. The higher prices charged by small-scale water providers than by water utilities can reflect a combination of factors: loss of economies of scale, subsidies for piped water, greater flexibility and convenience (e.g., no connection charges), and in some cases a local monopoly on a bulk water source. In some cases, it may be a public water utility that exercises that monopoly, earning a higher return — albeit on a smaller volume — from selling water to small-scale water providers than from delivering it through the piped network. On occasion, that can give rise to abuse, e.g., when intermittent service interruptions force even network customers to buy from small-scale water providers. Still, as long as publicly or privately owned water utilities bypass wide swathes of human settlements — notably urban informal settlements, the small-scale water providers will continue to fill an important need.[43]

67. In many countries of South Asia (including India, Pakistan and Bangladesh), the local private sector plays an important role in promoting the use of hand pumps for extracting groundwater, making the pumps available at affordable prices and adapting them to local needs and preferences. On the other hand, in most African countries, pumps were introduced through donor-driven programmes, lacking national or local ownership, and the result was absence of standardization of equipment and maintenance procedures. The local private sector lacked the entrepreneurial and technical capabilities to tailor that technology to local needs.

## B. Capacity-building

68. Considerable progress has been made over the last decade in terms of institution building and the development of policy and regulatory frameworks for water resources management, also in strengthening capacities of local enterprises and communities in different aspects of water resource management and service provision. Good results have been achieved in human resources development and

the transfer of technical skills, but there has been limited success in creating sustainable organizations and institutions.

Box 9
**Improved water accounting in Morocco**

Morocco has recently launched a water accounting project in the Oum-Er-Bia River Basin in partnership with the United Nations Department of Economic and Social Affairs with the intention of progressively developing accounts for all river basins in the country, and of integrating the results into the national accounts. More than 30 national and basin-level institutions are participating in that exercise, coordinated by the National Statistical Office, with assistance from ministries dealing with water, environment and land-use planning. Integrating the social dimension into the accounts is being studied. The end result is expected to be strong coordination among national institutions and a solid information base for rational policy-making.

69. Water sector institutions generally remain weak and underfunded, although they have developed during the last decade in terms of their capacities to contribute to water legislation, water policy, and water administration. While past achievements were associated mainly with investment in new physical structures, recent developments in the water sector are associated with improved management and institutional changes. A common problem in implementing institutional reform is that the water sector is large and diverse and responsibility for it is fragmented, or at least divided among several agencies. Considerable problems still remain with resolving competing demands for water from different sectors and with allocation of rights. Increasing competition between demands for irrigation and urban water, in particular, has brought the need for national integrated water management into sharper focus in recent years, likewise the greater appreciation of the value of various in situ benefits provided by freshwater resources, including maintenance of ecosystem integrity.

70. The sustainability of capacity-building activities in developing countries remains a major source of concern due to lack of adequate funding and political commitment. Collection of information and data for water management is often dependent on project activities; once the project is completed, data collection activities are abandoned. Observation networks and evaluation of basic hydrological phenomena that should serve as the basis of water resources policy have deteriorated in many parts of the world over the past decade. Poorly motivated, low-paid government staff are frequently a major constraint to strengthening technical and institutional capacities. Targeted needs assessments and demand-driven approaches are crucial to secure sustainability. Evaluation of the UNDP Capacity 21 programme has concluded that capacity development is an endogenous process, which cannot be imposed or replaced by outside interventions.[44]

# VI. Continuing challenges

71. The preceding sections identify some important challenges and issues that need to be addressed to achieve the internationally agreed targets relating to water. Most of them have been recognized before in international forums, but two factors make it important to review them again. First, access to drinking water has moved higher on the international agenda and is now recognized as a "basic human right".[45] Secondly, with 2005-2015 declared by the General Assembly as the International Decade for Action, "Water for Life", the twelfth session of the Commission on Sustainable Development provides an important opportunity for the international community to understand better the lessons learned and to impart a new impetus to implementation.

72. *Providing access to safe drinking water.* Increasing access to safe drinking water and sanitation is imperative to help prevent the large number of deaths and illnesses each year attributable to water-related diseases, to reduce poverty, and to achieve sustainable development. The most critical issues that need to be addressed to meet that challenge include: better targeting of subsidies to ensure that the very poor are the prime beneficiaries and to reduce the fiscal burden; devising tariff structures — e.g., lifeline rates — that ensure universal affordability of at least the minimum quantities needed to support life and health; mobilization of resources and expansion of infrastructure with more focus on rural and peri-urban areas and with an emphasis on low-cost technologies; rehabilitation of existing water systems; and promoting private sector participation and investment in the provision of affordable services. Access will have to be sustained through improved local governance and regular operation and maintenance (O&M) of the systems.

73. *Maximizing economic and social benefits from available water resources.* Increased water productivity in all sectors and allocation of scarce water taking into account its value in different uses is an important challenge for promoting sustainable development. Experience suggests the need for greater cost recovery in water pricing, supported by improved water administration and governance mechanisms.

74. *Improving water quality.* In many countries and water basins, particularly in developing countries, water pollution from household wastewater, industrial effluent and agricultural runoff is on the rise, posing serious threats to human health, ecosystems, and economic activity. Growing industrial sectors have been lagging in introducing cleaner production technologies, and wastewater-treatment facilities are often absent or non-functional. The political will and incentives to enforce existing laws and regulations remain weak in many countries. Concerns over the costs to industry of pollution control often take precedence over the internalization of the social costs of pollution. Resources are generally inadequate for regular and accurate water-quality monitoring. Experimentation is only beginning in most places with the use of economic instruments to reduce the costs of achieving water-quality objectives.

75. *Practising integrated water resources management.* Many of the problems facing the water sector are due to poor implementation of the principles of integrated water resources management. While countries agreed at the World Summit on Sustainable Development to prepare integrated water resources management and water efficiency plans by 2005, with support to developing

countries, the implementation of that goal requires coordinated action on several fronts. Efforts are needed to improve the quality of databases and information systems, including water accounting systems. Fragmented institutional structures with overlapping mandates and inadequate legislative and policy frameworks are important impediments to integrated water resources management. An equally important challenge is to foster dialogue among riparian States for efficient management and utilization of international waters. Action plans to minimize the impact of water-related disasters deserve priority in national planning processes.

76. *Improving agricultural water productivity*. Providing enough water to produce food is an enormous challenge, especially in those countries where water is scarce. Therefore, substantial increases in productivity will have to be achieved, requiring both stronger incentives to water conservation in agriculture and investments in modernization of existing irrigation systems. Agriculture will have to be able to release water to other, high value uses while at the same time ensuring water accessibility and affordability to poor farmers.

77. *Protecting ecosystems*. There is continued neglect of water requirements for maintaining valuable ecosystems in terms of both quantity and quality. Institutional and policy reforms that could help to improve the situation include delineation and validation of property rights of communities and institutions charged with conserving ecosystem functions, together with the further development and wider application of the concept of payment for ecological services.

78. *Mobilizing financial resources*. The country reports submitted to the Commission on Sustainable Development indicate that lack of financial resources is a major impediment to achieving the water and sanitation targets. The main obstacles to mobilizing resources are: inadequate domestic resource mobilization policies, insufficient flow of ODA to developing countries, and lack of private sector investment. Donor coordination at the country level, especially among the United Nations agencies through a well-structured mechanism, will be critical to providing an integrated and cost-effective response to the needs of member States in implementing the international water-related goals and targets.

79. *Strengthening institutional and technical capacities*. Experience suggests that sustained capacity-building efforts will be critical to achieve the internationally agreed targets. That will require increased budgetary allocations, including support from international donors. Monitoring and assessment capacities need to be kept operational. Also, the best-designed water management policies and programmes fail when implementation and enforcement capacities are weak. Apart from technical training, for example in water supply system operation and maintenance, training would be useful in the design of effective incentive mechanisms to encourage enforcement of water pollution laws and regulations.

*Notes*

[1] WHO/UNICEF, Global Water Supply and Sanitation Assessment: 2000 Report.

[2] http://www.wssinfo.org/en/122_definitions_en.html.

[3] See note 1.

[4] WHO (2000), cited by Gleick et al. (2002). The World's Water 2002-2003: The Biennial Report on Freshwater Resources, Island Press.

[5] Saghir, J., M. Schiffler and M. Woldu (1999). World Bank Urban Water and Sanitation in the Middle East and North Africa Region. The Way Forward, World Bank.

[6] CIMA Report (2003). Drinking Water Supply in Rural Niger, Report Prepared for the AfDB.

[7] Government of Pakistan (2002). Pakistan Water Sector Strategy, Ministry of Water and Power.

[8] World Population Prospects, the 2002 Revision, United Nations Population Division.

[9] This assumes no major disruption to precipitation patterns that might result, e.g., from global climate change. Gould, J. (1999). Assessment of Water Supply Options: Contributions Relating to Rainwater Harvesting, World Commission on Dams, October.

[10] For instance, in Manila vendor-supplied water costs 14-33 times piped water per cubic metres while in Delhi it is 6-10 times more expensive; McIntosh, A. C. (2003), "Asian Water Supplies Reaching the Urban Poor", Asian Development Bank, Manila. In many instances, however, competition limits the price differential vendors can charge.

[11] International Food Policy Research Institute/International Water Management Institute (2002). World Water and Food to 2025: Dealing with Water Scarcity.

[12] OECD (2003). Social Issues in the Provision and Pricing of Water Services. The OECD Environment Programme.

[13] Argentina, Bolivia, and Chile; Foster (2002), "Ten Years of Water Service Reform in Latin America: Towards an Anglo-French Model", in P. Seidenstat, D. Haarmeyer, and S. Hakim, eds., *Reinventing Waste and Wastewater Systems: Global Lessons for Improving Management*, John Wiley and Sons, Inc., N.Y., cited in Box 9.5 of *World Development Report 2004*, Chapter 9, The World Bank, Washington, D.C.

[14] World Bank (2001). Privatization and Basic Infrastructure Services for the Urban Poor.

[15] WHO (2003), *The World Health Report 2003*, Geneva.

[16] For the Seine and the Tokyo area, see *Water for People, Water for Life: The United Nations World Water Development Report*, UNESCO, 2003. For the Rhine, see www.thewaterpage.com/rhine-environment.htm. For the Danube, see www.icpdr.org.

[17] Barlow, M. (1999). "Blue Gold: The Global Water Crisis and the Commodification of the World's Water Supply". A Special Report issued by the International Forum on Globalization.

[18] Some 1.5-2.5 million tubewells are estimated to be contaminated with arsenic by the Bangladesh standard of 50 µg per litre and some 35 million people are estimated to be exposed to an arsenic concentration in drinking water exceeding that standard, 57 million to a concentration exceeding 10 µg per litre, the WHO standard; British Geological Survey Report WC/00/19 Vol. 1, *Arsenic contamination of groundwater in Bangladesh*; http://www.bgs.ac.uk/arsenic/bphase1/b_intro.htm.

[19] FAO (2002). "World Agriculture: Towards 2015/30", Rome.

[20] Irrigation efficiency is defined as the net irrigation water requirements, minus effective rainfall, divided by the volume of water diverted from water sources. Alternatively, it is also defined as the product of water application efficiency and water delivery efficiency.

[21] United Nations Department of Economic and Social Affairs/National Water Resource Authority, (2003). Sustainable Water Resources Management Project. These savings could be used to complement the Aden water supply, thus relieving stress on groundwater resources, as well as preventing further inland movement of the saltwater intrusion front. Under spate irrigation, floodwater from mountain catchments is diverted from river beds (wadi's) and spread over large areas. Substantial local wisdom has developed in organizing spate systems and managing both the floodwaters and the heavy sediment loads that go with them.

[22] Vermillion, Douglas. "Impacts of Irrigation Management Transfer: A Review of the Evidence", Research Report No. 11, International Irrigation Management Institute, Colombo, Sri Lanka, 1997.

[23] FAO (1996). Food Production: The Critical Role of Water, World Food Summit.

[24] Special Report in *Financial Times*, 9 December 2003, web site of the Murray-Darling Basin Commission: http://www.mdbc.gov.au/index.htm.

[25] Scavenger wells provide a more sustainable freshwater supply on islands or coastal areas where an underground layer of freshwater sits on a deeper layer of salt water, by using two pumps to balance saltwater and freshwater withdrawals.

[26] UNDP, United Nations Department of Economic and Social Affairs, World Energy Council (2000). World Energy Assessment.

[27] Saleth, R. and A. Dinar (2000). Institutional Changes in Global Water Sector, Water Policy (175-199).

[28] http://www.giwa.net/index.phtml

[29] Revenga, et al (2000). Pilot Analysis of Global Ecosystems: Freshwater Systems, World Resources Institute.

[30] OECD, Water Management Performance and Challenges in OECD Countries.

[31] *World Water Development Report (2003)*. United Nations World Water Assessment Program.

[32] GWP and WWC (2003). Financing Water for All: Report of the World Panel on Financing Water Infrastructure, Global Water Partnership and World Water Council, March. Estimates cover drinking water, sanitation and hygiene, municipal wastewater treatment, industrial effluent, agriculture, and environmental protection.

[33] See note 1.

[34] Based on table 4 of United Nations (2002), *World Urbanization Prospects*. The 2001 Revision, New York.

[35] Dinar, A., and J. Mody (2003). Irrigation Water Management Policies: Allocation and Pricing Principles and Implementation Experiences, *Natural Resources Forum*.

[36] Based on the typology contained in the PPI database of the World Bank: http://rru.worldbank.org/ppi.

[37] Based on the PPI database of the World Bank.

[38] Cf. J. Budds and G. McGranahan (2003), "Are the debates on water privatization missing the point? Experiences from Africa, Asia and Latin America", *Environment and Urbanization*, Vol. 15, No. 2, October.

[39] By one estimate, perhaps 10 per cent of water supply systems in the world are currently managed by the private sector; C. A. Linares (2003), "Institutions and the Urban Environment in Developing Countries: Challenges, Trends, and Transitions", Yale School of Forestry and Environmental Studies, New Haven, CT, July.

[40] Snell, S. (1998), "Water and Sanitation Services for the Urban Poor. Small Scale Providers: Typology & Profiles", Working Paper, UNDP/World Bank Water and Sanitation Program, Washington, D.C.

[41] A. C. McIntosh (2003). Asian Water Supplies: Reaching the Urban Poor (Chapter 7), Asian Development Bank, Manila.

[42] Solo, T. M. (2003). Independent Water Entrepreneurs in Latin America: The Other Private Sector in Water Services, Department of Finance, Private Sector and Infrastructure, Latin America Region, and Energy and Water Department, Private Sector Development and Infrastructure, The World Bank, Washington, D.C.

[43] One of the biggest challenges facing water regulatory bodies is how to monitor adequately the quality of water supplied by dozens or even hundreds of small-scale water providers.

[44] UNDP (2002). *Capacity 21 Evaluation Report (1993-2001)*, New York.

[45] On 28 November 2002, the United Nations Committee on Economic, Social and Cultural Rights adopted General Comment No. 15 on the right to water, referring to article 11 of the International Covenant on Economic, Social and Cultural Rights. The General Comment states that: "the human right to drinking water is fundamental for life and health. Sufficient and safe drinking water is a precondition for the realization of all human rights."